Growth, Nutrition and Feeding of Children With Special Health Care Needs

Massachusetts Department of Public Health

Growth, Nutrition and Feeding of Children With Special Health Care Needs

Cynthia Taft Bayerl, R.D., M.S.
Tina Dean, OT/L
Trudy Latzko, R.N.

Developed as part of:

Project TIES
Training In Expanded Services

Caring for Severely Disabled Children In Family Settings

Massachusetts Department of Public Health
Bureau of Parent, Child and Adolescent Health

Supported in part by a grant from the Massachusetts Administering Agency for Developmental Disabilities (Grant #86-1-10).

INTRODUCTION

This booklet has been produced in response to requests from home health agencies and parents who are interested in learning more about nutrition and feeding issues of children with special health care needs. The material has been adapted from workshops on this topic sponsored by the Department of Public Health through Project TIES (Training in Expanded Services). It begins with a description of the normal gastro-intestinal system and the various health conditions affecting its function. This is followed by a discussion of oral motor development, feeding problems, and specific techniques for successful feeding and optimal nutrition.

We hope this booklet will be a valuable resource. Please feel free to photocopy pages from it to share with others or to use in your own training programs.

TABLE OF CONTENTS

DIGESTIVE SYSTEM: FEEDING AND NUTRITION

Objectives

After reading this booklet, you will be able to:

1. Name four parts of the gastro-intestinal system and their functions.
2. Discuss three disorders of this system and their treatment/care.
3. Demonstrate familiarity with several commonly observed feeding difficulties and appropriate interventions.
4. Outline three special diets and the conditions for which they are appropriate.
5. Demonstrate knowledge of the appropriate amounts of food to feed a particular child.
6. Demonstrate a working knowledge of proper positioning for feeding.

ANATOMY

The digestive system is responsible for breaking down food into a form which can be transported by the blood to all parts of the body. This action is both mechanical and chemical. The digestive tract is 30 feet long; each organ is important to the end goal of delivering supporting nutrients to the body cells.

Mouth

- Teeth shred and tear large chunks of food into smaller pieces.
- Enzymes in the saliva start to dissolve some carbohydrates. Enzymes are made by the body to help transform one substance into another to speed digestion; otherwise digestion would take days instead of hours.

Esophagus

- Moves food to stomach

Stomach

- Churns, mixes and dissolves food

Liver

- Manufactures bile
- Stores glucose, a form of sugar which is released in large amounts when needed by the body

Gall bladder

- Stores bile

Pancreas

- Secretes pancreatic juice

Small intestine

- Digestive juices from liver, gall bladder and pancreas break down food in the duodenum, the first part of the small intestine
- Villi lining the duodenum absorb digested food which is moved by the bloodstream to the cells

Large intestine

- Water is reabsorbed into the body

Rectum

- Collects waste
- Expels waste when it is full by relaxing sphincter muscle

Anus

- Opening to outside of body

DISORDERS

Oral Cavity Conditions

Cleft Lip and Cleft Palate

The incidence of cleft lip or cleft palate is from one in 600 to one in 1250 births. A cleft defect may occur without any other disability or medical condition. There appears, however, to be an increased incidence of congenital and intellectual impairments among children with cleft defects. This can be partially explained by an increase in hearing impairment in children with cleft palate and by the frequency of cleft defects among children with chromosomal abnormalities.

Immediate concerns

The feeding of an infant born with a cleft defect must be carefully managed to avoid aspiration (inhaling food or liquid) and infection.

- Feed in an upright position.
- Use softened nipples with slightly enlarged openings.

- Use a medicine dropper or feed by gavage tube at times.

A complete program of habilitation may require years of special medical, surgical, dental and speech treatment.

Surgical correction

Cleft lip: usually done a month or two after the infant is gaining weight and is free of infection.

Cleft palate: optimally performed from six months to five years of age, depending on the need to take advantage of palatal changes which occur with growth.

Final surgeries to bring about optimal cosmetic results may not be performed until adolescence.

Management and Care

After surgery:

1. Gentle suction of the nasopharynx minimizes the chances of collapse or inflammation of the lung. A bulb syringe may be sufficient.
2. Maintain clean suture line.
3. Prevent strain on the sutures.
   a. Feed with a medicine dropper or spoon.
   b. Restrain arms with elbow cuffs for three weeks.

Ongoing:

1. Feeding techniques will be different for a cleft lip than for a cleft palate.
2. Unnecessary exposure to colds and flu should be avoided. Modifications in environment (e.g., increased humidity in classroom) are preferable to limiting experiences.

3. Both parents and child need to have professional help in dealing with the emotional impact of the disability.
4. A team approach is best, and may require the services of pediatrician, plastic surgeon, otolaryngologist, psychologist, orthodontist, speech therapist and social worker.

Oral Moniliasis (Thrush)

Oral infection with the fungus Candida albicans is fairly common in the newborn infant. The oral lesions are white, flaky plaques covering all or part of the tongue, lips and gums. Discomfort may interfere with eating. The usual and simplest form of treatment is applying nystatin liquid, four times a day, to the insides of the cheeks to ensure maximum contact with the thrush. Thrush may occur whenever a child is chronically ill or malnourished; it is one of the primary symptoms of pediatric AIDS.

Esophageal Defects

The most common congenital defects of the esophagus are atresia (absence of the normal opening) and fistula (an opening where there shouldn't be one). Most of these malformations can be corrected surgically. Success is dependent on early diagnosis before bronchopneumonia or dehydration develops. Common warning signs that something may be wrong with the esophagus are:

- excessive salivation and drooling
- choking
- cyanosis (bluish skin due to lack of oxygen)
- regurgitation of feedings

The most common cause of acquired esophageal stricture or narrowing is the ingestion of a corrosive chemical, such as a household cleaning agent. The first mouthful causes intense burning and pain which stops further swallowing, but the damage has already occurred.

Treatment

- Ampicillin
- Dilation of the esophagus, with gradual increase in the size of the dilators
- Instrumentation is avoided in severe acid burns; jejunostomy (opening made in intestinal wall) may be necessary for feeding purposes
- Surgery may be necessary to replace the esophagus

Gastrostomy

When X-ray studies confirm the diagnosis of an esophagus which does not function properly, a gastrostomy may be performed. A gastrostomy is the procedure by which an opening is made through the abdominal wall so that the child may receive feedings directly into the stomach. An upright position is maintained during these tube feedings to avoid backup of stomach contents (gastro-intestinal reflux).

Many children who need to be fed by gavage (via the esophagus), jejunostomy or gastrostomy tubes may eventually be weaned off these feedings and helped to gradually increase their feedings by mouth. Patience is the prime ingredient in this process. The child's mouth may need to be desensitized; perseverence is needed because each feeding will take longer than usual at first.

Liver Disease

Infectious Hepatitis

This is the leading viral disease in the United States for which no vaccine exists. Life-threatening complications are:

- hemorrhage

  fluid retention

Treatment

- Diet of adequate calories; frequent feedings
- Steroids to improve appetite, decrease inflammation and improve kidney function
- Prednisone is used only for coma, fever, bleeding and abnormal blood chemicals

Chronic Liver Disease

In children, chronic liver disease may be part of a wide variety of disorders which may be acquired or hereditary. Primary hereditary metabolic disorders include:

- Wilson's Disease
- Cystic Fibrosis
- Sickle Cell Disease

Children with chronic liver disease are jaundiced; their skin and the whites of their eyes may be yellow. Fluid in their abdomens may need to be drained and bleeding may occur from the esophagus, so that they need transfusions.

Pancreatic Disease

Cystic Fibrosis

In this country, Cystic Fibrosis accounts for the great majority of cases of progressive pulmonary (lung) disease in children. It is a hereditary, recessive disorder due to a generalized dysfunction of glands. About 5% of the population in predominantly Caucasian countries are carriers, making Cystic Fibrosis the most common lethal hereditary disease among young Caucasians.

Mucus-producing glands swollen or inflamed by abnormal secretions may cause:

- pancreatic lesions
- liver fibrosis
- gallbladder disease
- lung disease
- cardiac abnormalities
- infertility

Management and care

Until the basic defect in Cystic Fibrosis is discovered, an effective treatment or cure cannot be devised. At present, therapy is mainly aimed at slowing down or preventing complications. A multi-disciplinary team approach is needed, involving pediatrician, physical therapist, social worker, dietitian, and at times, psychiatrist.

Therapeutic measures include:

- Respiratory therapy
  - inhalation therapy
  - postural drainage
- Antibiotics to control infection
- Vitamins
- Drugs
  - steroids
  - digitalis
  - bronchodilators
  - pancreatic enzymes
  - diet modifications

Children with Cystic Fibrosis may enjoy full normal activity or become so disabled that they are confined to bed or chair. The extent to which pulmonary and digestive systems are affected usually determines the child's degree of function.

Disorders of the small and large intestine, rectum and anus

A variety of congenital anomalies of the digestive tract may be responsible for:

- lack of nerve control (e.g., Hirschprung Disease)
- obstruction
- inflammation

These conditions may require the construction of an artificial opening, called a stoma, into the intestine through the abdominal wall.

Colostomy and ileostomy

A colostomy is the diversion of the large intestine or colon so that bowel contents are collected outside the body, usually into a disposable plastic bag, held in place against the abdomen by self-sticking adhesive or a belt. The semi-solid stool collected this way is not irritating to the skin.

When the lower part of the small intestine, the ileum, is diverted, the intestinal contents are liquid. If a child has an ileostomy, the irritating qualities of the liquid demand that meticulous skin care be maintained. Most colostomies in young children are temporary; the bowel is reconstructed after a few months or years.

Management

- diet with enough fiber to ensure stool formation
- plenty of fluids
- meticulous skin care
- control of odor and/or gas through diet and frequent change of appliance
- encourage involvement of child in self care
- no physical limitations are necessary

Danger signs which should be reported

- watery diarrhea, which can progress rapidly if not checked
- large amount of bleeding through the stoma
- lack of bowel movement
- stomach bloating, pain, vomiting or fever

Source: Medical Aspects of Developmental Disabilities in Children Birth to Three. James A. Blackman, M.D., University of Iowa, 1983.

Encopresis

Encopresis, the involuntary passage of feces which is unrelated to an organic defect or illness, may be present at birth or arise after the child attains bowel control. Since the natural course of encopresis, like enuresis (involuntary passage of urine), may become habit if not resolved, careful neurological, psychological and child psychiatric consultations are indicated. Unless severe psychosocial disorder exists in the family, the problem of encopresis is frequently resolved.

Failure to Thrive

The diagnosis of Failure to Thrive is made when a child (1) fails to grow or (2) has an interrupted growth pattern. The normal growth pattern for the first 2 1/2 years is:

- newborn: weighs at least 5 1/2 lbs. (average is 7 to 7 1/2 lbs.)
- first few days of life: 10% loss of weight
- at six months: doubles birth weight
- at one year: triples birth weight
- at 2 1/2 years: quadruples birth weight

Non-organic FTT

When a child fails to grow without evidence of an organic defect or illness, one needs to examine the parent-child relationship. If the child is not receiving emotional nurturance from at least one parenting person, he or she will exhibit the following symptoms:

- failure to make emotional bonds
- poor appetite
- lack of social responsiveness
- growth failure
- lack of visual tracking and visual reciprocity

Severe symptoms may include:

- poor muscle tone
- complete lack of interest in environment
- serious developmental delay
- death

A diagnosis is confirmed if the child's growth catches up when the child is placed in a nurturing environment and fed sufficiently.

Organic FTT

Although disabled children are vulnerable to non-organic R.A.D. (Reactive Attachment Disorder) and a careful evaluation of all factors in the child's life needs to take place, children may also fail to grow as a result of:

- genetic conditions
- malnutrition before or after birth due to lack of food in general or lack of certain nutrients. If a child is malnourished, weight suffers more than height.
- intoxication, such as lead poisoning
- infestation, such as parasites
- infection, such as tuberculosis or urinary tract infection
- defect in the major organ systems, such as:
  - neurological disorders, brain damage, lack of oxygen or tumor
  - heart defects, which can interfere with the supply of oxygen and nutrients carried by the blood
  - obstruction of the digestive tract, which can cause vomiting and poor absorption of food
  - obstruction of the genito-urinary system, which may cause changes in the electrolytes surrounding the growing cells

FEEDING

Introduction

Feeding is an integral part of life; we, as adults, partake in the ritual of eating at least three times a day and sometimes more. Children, especially infants, eat on a more frequent basis. The required caloric intake for normal weight gain and general development is the greatest per kilogram of weight when a child is born (approximately 115 calories per kilogram weight for the first six months), gradually decreasing as the child grows (82 calories per kilogram weight at 7 - 10 years).

Because eating is such an important part of our lives, it is not difficult to understand why we will put such an emphasis on the development of normal feeding patterns and behaviors in this chapter.

Social/cognitive development begins with the feeding process -- from nurturing and bonding to proper social skills. In this chapter, the goal will be to increase your ability to understand and be sensitive to that bonding/nurturing process, and how it relates to feeding. It is also the intent of this section to increase your awareness of the social implications of feeding problems.

Finally, basic feeding techniques to assist with the feeding process will be discussed and specialized adaptive equipment will be reviewed.

Nurturing and Bonding as They Relate to the Feeding Process

Although there are many causes of feeding problems, the effects are very similar. For the neurologically impaired infant, the most common cause of feeding problems is impairment of the swallowing mechanism with less common problems being congenital malformation of the mouth and throat.

For the premature infant, a common cause of feeding problems is the infant's adjustment to the environment after being taken out of the intensive care incubator. Most premature infants are initially tube fed then slowly transferred over to feedings by mouth. This isn't always easy or spontaneous. Some infants need special stimulation to begin sucking, and it can be very difficult for young parents to understand this problem. Sometimes they see themselves as unable to feed their child, or feel they are being rejected by their new baby. It is important that the child and the parents receive help from the nursery staff to alleviate this problem before the infant is discharged home.

For the first few weeks of life, the child's primary activities are sleeping and eating. It is during these feeding times that the bonding between mother and child begins. It is this early attachment that lays the groundwork for later emotional development. If this early time is interrupted due to severe feeding problems or parent's inability to feed their child, then this bonding is also interrupted.

During the feeding sessions, social responses are also developed. The infant begins to develop attention span and concentration. The closeness of feeding helps the child to concentrate on one stimulus, gradually expanding to exploring the surrounding environment. The child begins to get a sense that he or she can explore the environment knowing that the mother will still be there. Having a secure base helps the child begin to develop confidence.

ORAL MOTOR DEVELOPMENT

Oral Motor Reflexes

All newborns are born with a variety of automatic movements or reflexes. This is true for the oral area as well. While there are many such reflexes, the most common are as follows:

Rooting Reflex:	Turning head (possibly trunk) in direction of stimuli in response to light stroking beside mouth. *Should be gone by three months.
Bite Reflex:	Firm bite in response to stimulation of gums. *Should be gone by 6 - 8 months.
Suckle/Swallow:	Rhythmic pattern to sucking and automatic swallowing in response to food. *Reflex diminishes around 2 - 4 months.
Gag Reflex:	Sudden closing of throat to force out an object, in response to stimulation of base of tongue or throat. *At birth, decreases around 7 months as chewing develops but remains throughout life.

Oral Motor Development

Development is usually spontaneous and emerges in sequence. Although the exact month or day when a particular stage is reached can overlap or vary, the order is usually as follows:

1 MONTH:	poor lip closure -- liquids run out corner of mouth
	bite reflex
	gag reflex -- overly sensitive
	poor head control/just developing
	suckle/swallow reflex
	rooting reflex
3 MONTHS:	beginning head control
	pre-language sounds
	acceptance of strained foods and spoon
	increased movement of tongue for swallowing
	slight gagging
4 MONTHS:	beginning hand-to-mouth coordination/activity
	better lip closure
	increased tongue control
	increased acceptance of textured foods -- may see some increased gagging until mouth adjusts
5 MONTHS:	increased mouthing and oral sensitivity
	increased hand-to-mouth activity/coordination
	teething -- may see increase in drooling
6 MONTHS:	good lip control
	voluntary sucking
	beginning to drink from cup
	beginning lateral tongue movements

8 MONTHS:	beginning rotary chewing
	beginning finger feeding
	biting and chewing toys
12 MONTHS:	good tongue lateralization
	good jaw movements and control
	good lip control for cup drinking
	fully developed chewing using teeth and elevating tongue
24 MONTHS:	automatic rotary chewing
2 years	holds cup in one hand, spilling decreases
	apt to dawdle and play with food, stir and refuse it
36 MONTHS:	feeds self, rarely needs assistance
3 years	pours from pitcher -- no spilling
	uses fork
	holds utensils with palm up
	interest in setting table
	may get up from table
	either talks or eats
4 YEARS:	rarely gets up from table
	eats and talks simultaneously
	likes to serve self

5 YEARS:	bigger appetite
	tends to squirm and monopolize conversation
	beginning to use knife
	refinement of feeding skills
6 YEARS:	uses back of hand to wipe mouth
	permanent teeth coming in
	prefers fork to spoon
8 YEARS:	may cut meat with knife

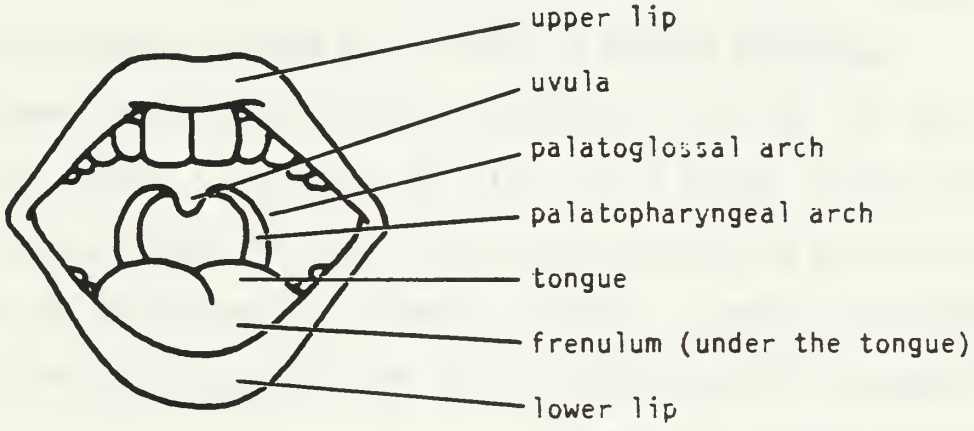
The Relationship between Speech and Feeding

There is a close relationship between feeding and speech development. As oral motor control develops, becoming strong and more manipulative, the infant will begin to make sounds and babble. Chewing gives an opportunity to practice coordinating the movements of the tongue, teeth, and cheeks.

As the child accepts more textured food, the tongue is forced to become more agile, learning to move more rapidly from side to side and front to back. As the child's feeding ability improves, he or she begins rehearsing the oral motor movements for speech. At approximately 6 to 8 months, the child begins to have good lip closure around the spoon. This lip action resembles the movements necessary for the "p," "b" and "m" sounds which will come later on. Sucking and swallowing forces the tongue into an upward and downward motion which propels the food from the front of the mouth to the rear. This type of tongue movement is rehearsing the throaty sounds "ah" and "ga" which are the first speech sounds the child will make.

Oral Structure

Knowing the oral motor area is important especially when feeding a physically handicapped child because stimulation to any or all of these areas may cause an unwanted reaction. The mouth has many structures. The most commonly referred to are:



Chewing and Swallowing

The chewing or mashing of food takes place in several stages. Food enters the mouth and is placed to the side of the mouth by the tongue. The teeth begin to mash the food in an irregular pattern until the food has a more even consistency. All the while the initial chewing is taking place, saliva is being mixed with the food in order to form the bolus. The bolus is gently moved from side to side by the tongue, and chewing becomes more consistent. When the bolus is completely formed, swallowing occurs.

Swallowing happens when the tongue forms a vacuum in the mouth in order for the food to begin moving down the esophagus. When swallowing the food is placed in the center of the tongue. The tip of the tongue then rises to the hard palate just behind the upper two front teeth. When this happens a vacuum is formed in the mouth, and when the tongue contracts the squeezing motion of the esophagus begins and the food is pulled down to the stomach.

Having a basic understanding of chewing and swallowing, it is easy to understand why special needs children may have difficulty with feeding. If their muscle tone is too high they may not be able to close their mouths adequately to form the vacuum for swallowing. If they are unable to lateralize their tongue movements they may not be able to move the bolus around their mouths for adequate chewing.

ORAL MOTOR PROBLEMS

Most feeding problems of a handicapped child stem from some kind of central nervous system dysfunction, though some are behaviorally based. Problems can include abnormal muscle tone, abnormal reflex development or hypersensitive responses to various external stimuli.

Hypersensitivity of the Central Nervous System

Hypersensitivity can affect any of the body's sensory systems:

touch/tactile

pain

temperature

vision

hearing

smell

The most common senses to be hypersensitive are touch/tactile and hearing.

Hypersensitivity to Touch/Tactile Stimulation

Hypersensitivity to touch/tactile stimulation can be seen throughout the total body, just around the face, or just in the mouth. Obvious reactions to tactile stimuli include withdrawing from the source with unusual speed and intensity or becoming exceptionally agitated.

Normal Development of the Tactile System

- Initially, overall physical contact with environment may be either pleasurable or irritating and will usually alternate between the two.
- Early startle is the child's innate reaction to potential dangers and is a protective reflex.

- As the child becomes accustomed to various stimuli, response diminishes to a less violent reaction. At the same time, the child is also gaining control over the primitive protective reflexes.

Abnormal Development of the Tactile System

Negative response to stimuli does not diminish. If the child's mouth is hypersensitive to touch, it may lead to feeding difficulties. He or she may react negatively to the presentation of spoon or cup, and may also be sensitive to the different textures of food. Severe hypersensitivity may cause intense reactions to variations in food temperature and taste.

Hypersensitivity to tactile stimulation is more often seen in children with increased muscle tone (i.e., cerebral palsy, spastic variety, both quadriplegic and hemiplegic). When handling a child with tactile hypersensitivity, it is best to used a firm touch rather than light stroking. It is also suggested that you avoid over-stimulation and/or activity at all times but particularly right before the meal.

As in most things, there is an opposite end to the spectrum. Some children may be hyposensitive to touch, meaning that they do not fully feel or understand the tactile stimulation coming into their bodies. This is seen most commonly in infants with decreased muscle tone, such as babies with Down syndrome. Safety is the primary concern for these infants because their reflexes may be reduced, increasing the possibility of choking on food or liquids.

Hypersensitivity to auditory stimulation may also be seen in the handicapped child. The child may be startled by what would seem to us to be noise of a "normal" volume.

This type of response to noise is commonly seen in children with increased muscle tone (cerebral palsy).

Abnormal Muscle Tone

Overall muscle tone is also reflected in the oral-facial musculature. If the child has increased tone, there may be overall tightness in and around the mouth. For the hemiplegic child (abnormal muscle tone only on one side of the body) there may be facial asymmetry. Children with athetoid cerebral palsy or ataxia will display unstable, irregular movements when opening and closing their mouths.

When a child has overall spasticity, there are several commonly seen oral motor problems. One is a retracted upper lip, which makes it impossible for the child to actively remove food from the spoon. Parents tend to scrape the spoon against the upper teeth to remove food, sometimes stimulating oral reflexes in a child hypersensitive to touch. Athetoid children can open and close their mouths, but have difficulty maintaining the mid-open position necessary for cup drinking. The jaw may also deviate from the midline, causing inadequate chewing and lip closure for sucking and swallowing.

Another problem often associated with increased tone is abnormal tongue thrusting, usually seen during swallowing. Upper jaw and tooth alignment deformities may result from prolonged tongue thrusting.

Children with increased muscle tone often have problems developing adequate breathing patterns (this can be a concern, especially if the gag and cough reflex are depressed).

- Increased extensor muscle tone tightly retracts the abdominal muscles, causing shallow breathing.

- Increased flexor muscle tone pulls arms tight over the chest, also causing shallow breathing.

The early developmental reflexes are also often maintained in the child with increased muscle tone. It is important to be aware of these reflexes, what triggers them and how to avoid them. These reflexes can alter the muscle tone, disrupting sitting balance and making the child feel very unstable.

The best way to avoid stimulating these reflexes is to:

- Make sure that the child is relaxed, either through quiet activities or muscle relaxation activities.

- Keep the child's head, trunk and limbs aligned.

- Keep the child slightly flexed at the hips, and make sure he/she has firm support for his/her back and feet.

GENERAL SUGGESTIONS TO HELP NORMALIZE THE FEEDING PROCESS

When feeding a child for the first time, you should know any special techniques or methods used. This can be best obtained by direct observation of the parents feeding the child. Because special children respond best to consistency and continuity, it is important to maintain the parents' current feeding program. Either a meal or a snack can be observed; but make sure that a utensil is used and the child is given a drink so you can see all aspects of feeding.

Structuring the environment before the meal can be easily accomplished. Some suggestions are:

- All food and equipment should be out of the child's reach.
- Ground cover can be used if the child is beginning to feed him/herself, to protect the floor.
- Family members can be strategically positioned at various spots around the table.
- For older handicapped children, you may want to have the meal set up family style (if the child can tolerate it).
- You may want to limit what is put on the table if:
  - the child has a decreased attention span
  - the child has a tendency to steal food from other people.
- If the child's vision and hearing are hypersensitive, remove all brightly colored objects and maintain a low volume of noise.

Preparing the Meal

Before the meal, the child should relax, whether by participating in a quiet activity or going through relaxation techniques.

Relaxing the muscle tone before eating is important for several reasons:

- It makes the child more comfortable and also makes it easier to properly position the child.
- It increases the possibility of the child experiencing a more normal feeding process.
- It eases the feeding process for both child and adult.

Handling and Management

- Lay child on his/her back with a pillow under the child's head.
- Grasp child's hips with your fingers in front and your thumbs behind.
- Slowly rock forward until child is bearing weight on shoulders, upper back and neck.
    - The rocking and rotation help to relax the muscles
    - The rolling up helps to elongate the tight muscles
- Gently rotate child's hips from left to right.
- You can rest child's hips on your knees.
- Place your hands under child's neck and gently massage tight muscles.

Feeding Positions

There are many feeding positions you can use. It is important that you be as comfortable as possible, as the child may sense your uneasiness, and become more irritable. General positioning suggestions for the child are:

- The child should have firm support in an upright position.
- The head should be in the midline position slightly flexed forward.
- The arms and feet should also be in the midline to avoid triggering developmental reflexes.

- The chair should fit.
- The feet should be firmly supported.
- The table should be at the appropriate height.

For the child with minimal head and trunk control, maximal support is necessary. This type of child should be fed in a well-supported device such as a car seat, infant chair, or adapted high chair, not in your lap. The feeder should be in the front, at the child's midline.

- Use a table for extra support.
- Use a car seat or small infant chair (a wedge for your lap can be used if necessary).
- If using the wedge, the baby's legs should straddle your thighs, keeping them from scissoring (crossing due to increased muscle tone).
- The child's shoulders can be brought forward by applying light pressure to the chest, if the child should go into hyper-extension.
- If jaw control is necessary, you can use your forearm to keep the trunk in position so that your hands remain free.
- You can bring yourself closer to the table by bringing the child into a more upright position as head and trunk control increase.

For the child with increased head and trunk control, the upright position is recommended.

Side sitting on lap

- To keep the child from going into extension, raise your leg under his/her knees a little higher than the leg that has his/her buttocks.
- Jaw control can be effected by bringing your arm around the child's back (rest your elbow on the table so you don't get tired).
- Place the food in front of the child (if possible) so the child can see where it is coming from.

As soon as head and trunk control develop:

- Use a chair or some type of sitting device. Do not prolong lap feeding.
- Avoid letting the child sit with a rounded back -- the child will compensate by lifting his/her chin, making swallowing much more difficult.
- If the child lifts his/her head, it increases the chance of going into total body extension.
- Make sure his hips and knees are as close to 90 degrees as possible.
- Legs should be slightly apart.

SPECIFIC TECHNIQUES TO ASSIST WITH FEEDING

There are many different techniques used before and during a meal to help a child with feeding problems. Different people have found various techniques more successful than others. The following examples have been used by the ILMPO Program* and found to be beneficial. However, it is important to note that individual parents may use other techniques for consistency of the individual feeding program.

*a program which has been incorporated into Community Resource Center, a part of Enable, Inc.

SPOONS

1. Never use plastic spoons.

2. Small stainless steel rubber-coated spoons are very good; they should not have a pointed end.

3. Spoon must fit without hitting teeth and should cover a large area on the tongue without stimulating the gag reflex.

FOOD TEXTURES/CONSISTENCY

1. You change the consistency of food by making it smooth, thick and/or dry.

2. Baby foods are too smooth; therefore, add potato buds, wheat germ, or powdered milk.

3. Junior foods have too many different consistencies.

4. Initially you want the food to be thick; otherwise it runs out and the child cannot do anything with it.

SPOON FEEDING

Important procedures when using spoons:

1. Place food just on lip of spoon.

2. Present spoon lower than head and in the midline.

3. Maintain the child in a good position.

4. When the mouth opens, allow just enough space to get the food into the mouth.

5. Spoon goes in straight and in midline; place it flat on the tongue.

6. Wait for spontaneous mouth closure; assist only if the child does not close the mouth.

7. When removing the spoon, bring it straight out of the mouth; do not remove the food from the spoon by scraping it against the upper teeth or gums.

8. Don't mix food textures on one spoon; during the meal you do mix textures, but not on the spoon.

9. Avoid spillage on the chin by using good jaw control. Dab the chin if it gets wet, but don't scrape the chin with the spoon because a lot of light touch stimulation around the mouth during feeding only increases muscle tightness and decreases coordination.

10. Try to get child on table foods as soon as possible.

CUP

The best cup is a small plastic cup with one side cut out in a half-moon shape. This type of cup can be tilted toward the child without requiring him/her to tip his/her head back and thereby reinforce the head extension. It is, however, important to use the child's own equipment if possible.

DRINKING

If the child is drinking from a cup with your assistance in holding the cup or giving some jaw stability, the following are basic considerations to remember:

1. Position the body so that it is symmetrical and the head is forward; use jaw control if the child needs it.

2. You should use jaw control for drinking even though you might not be using it for feeding because it is much more difficult to swallow liquids when drinking from a cup.

3. Present the cup to the child's midline.

4. Place it between the lips with the jaw closed.

5. Liquid is placed just to the edge and then you wait for the child to draw the liquid in.

6. The cup rests between the lips; it does not press down on the bottom lip or tongue.

7. If the child drools or drips the liquid out, then the flow of liquid might be too fast, position of the cup between the lips might not be correct, or lip closure may not be good enough.

SPECIFIC TECHNIQUES FOR COMMON ORAL PROBLEMS

Lip and Jaw Closure

Purpose

- Controls jaw extension and closure
- Keeps lips closed
- Prevents tongue protrusion
- Assists with normalizing chewing and swallowing
- Inhibits the bite reflex during cup drinking
- Teaches partial jaw opening and closing

From Behind

- Index finger under bottom lip
- Middle finger under chin just behind the tip of the chin (stop tongue protrusion)
- Arm behind head to maintain good head position
- Optional: thumb on cheek for added control

From Front

- Thumb under bottom lip
- Middle finger stretched under chin behind the tip of the chin
- Index finger on cheek

Prior to the meal give deep pressure strokes to the facial area. This facilitates the relaxation of facial muscles and prepares the child for the eating process. Afterwards, give deep pressure to the lips while they are held closed.

Tongue Thrusting

1. Spoon feeding inhibits tongue thrust; chewing helps to stimulate more mature tongue movements and to inhibit the tongue thrust.

2. Place the spoon in the middle of the tongue and press down when removing the food from the spoon.

3. If tongue thrusting continues to be a problem, take the bowl of the spoon and lightly stimulate under the tongue, on each side of the frenulum.

4. Non-sticky foods are recommended. Try to avoid foods with the consistency of peanut butter.

5. <u>The bowl of the spoon should never make direct contact with the hard palate!</u>

Bite Reflex

As described before, the bite reflex is stimulated by making contact with the teeth or gums. Obviously, the best way to avoid stimulating this reflex is to avoid contact with those areas.

1. For the child with a severe bite reflex, deep pressure stimulation around the face, prior to the meal, is often helpful. (a)

2. Give deep pressure to the lips with your finger or the bowl of the spoon. (b)

3. Empty the spoon on the middle of the tongue, giving downward pressure.

4. If the reflex is stimulated, do not jerk the spoon out of the mouth. Gently rock it from side to side, while pulling steadily outward. (c) If this doesn't work, give deep pressure strokes to the outside of the face as in (a).

Gag Reflex

It is very important for you to be aware if the child has a strong or weak gag reflex.

1. For the hyper-responsive child, place the food on the very front of the tongue with the first spoonful. Gradually place it further and further back on the tongue, stopping at 1/3 of the way back, or where the child is most comfortable and not gagging.
2. For the hypo-responsive child, place the food 1/3 way back on the tongue. The most important issue is to maintain a good head position (neck slightly flexed forward and in midline). If the child maintains a good position, the possibility of choking is decreased significantly. Also, do not overload the child's spoon. Give only small amounts at a time.

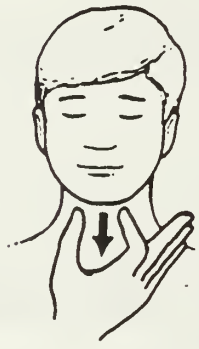
Sucking

Many times the child will need assistance to start sucking. This especially needs to be done with bottle drinking.

1. Give deep pressure strokes to the outside of the face and mouth.
2. When giving the bottle, push and pull the bottle inward and outward. At the same time, give deep pressure strokes to the cheeks.

Swallowing

Swallowing incorporates the muscles of the mouth and chin. Sometimes children have difficulty coordinating these two areas. If the child appears to be having difficulty, there is a simple procedure that can be used to stimulate swallowing.



1. Positioning is very important. Head in midline, slightly flexed forward.
2. After the food has been placed in the child's mouth, give deep pressure upward on the soft pad behind the chin bone.
3. Afterwards, give 1 or 2 deep pressure strokes down the neck with forefinger and thumb on either side of the esophagus.
4. Repeat entire procedure only when needed. Try not to overstimulate.

Oral Hygiene

There is a lot of emphasis today placed on the importance of good oral hygiene. This holds true for special needs children also--especially for those children who are or have been on various medications for a long time.

All feeding programs should be followed by a vigorous oral hygiene program which should include tooth brushing with a toothbrush and tooth paste. Toothletts or a soft cloth can be used in place of the toothbrush. Proper positioning and midline orientation are as important for toothbrushing as they are for feeding. Parents should be encouraged to have their children get routine dental check-ups.

IMPORTANT INFORMATION YOU SHOULD KNOW BEFORE FEEDING A CHILD

1. The types and textures of foods the child is eating.
2. Food preferences
3. Usual amounts per meal
4. Feeding schedule
5. Amount of time it takes to feed the child per meal
6. Special positioning (equipment vs. lap feeding)
7. Utensils used to feed the child (spoons and cup or bottle)
8. Problems with chewing, gagging, or choking?
9. Special stimulatory techniques to help the child eat

EATING AS A SOCIAL EXPERIENCE

- Learning good eating habits is important for healthy development
- Offers an opportunity for parents and child to interact
- Encourages child to develop trust in self and others, by allowing child to set rhythm of feeding
- Do not encourage overfeeding or forced feeding, especially at the end of the first year when all children's appetites slow down as the rate of growth decreases. Overfeeding during this time can affect the child's eating habits over a lifetime, and could lead to overweight problems later in life.

The overall goal in the feeding situation is to increase the consistency of the diet as the ability to manipulate food improves. Monitoring the child's intake of food is important. Any questions about what or how the child is eating should be directed to your child's physician or nurse practitioner.

Functions of Food

- Growth
- Maintenance
- Catch-up

Food also functions to teach the child how to use his/her body (eyes, hands, mouth, throat) and allows child to get to know foods.

CARBOHYDRATES	Starches and sugars which provide the body's main source of energy. Found mostly in plant foods and milk.
PROTEINS	Primarily used for growth and repair, protein is found in meat, dairy products, eggs, poultry, legumes, fish, etc.
FATS	Concentrated sources of energy which carry vitamins and minerals. Found mostly in animal products such as butter, cream and meats, and in margarines, oils and nuts.
VITAMINS AND MINERALS	Substances used in the body for maintenance, repair and many other bodily processes, they are essential in small quantities. Found mostly in fruits and vegetables and in meats, milk and grains.
WATER	Essential for all bodily processes, water is needed by everyone in large amounts daily.

Your child needs all of these foods every day, except when on a special diet which eliminates a certain food or food group. As a rule of thumb, your child needs 1 Tablespoon (T.) of each food at each meal per year of age. For example, a good meal for a 3-year-old child would be:

3 T. Meat	3 T. Fruit
3 T. Potato	4 Oz. Milk
3 T. Vegetable	1/4 - 1/2 Slice of Bread

For more detailed information, see Table 3. Remember that these are general figures for normal children and may have to be adjusted for your special child.

Progression of Foods

All infants begin life with breastmilk or some type of formula. The progression to other types of food depends on the baby's readiness, which is dependent on a number of factors. The introduction of semi-solid or pureed foods usually begins by the age of 6 months. However, the introduction of foods to children with special needs may vary considerably, and is determined by the child's developmental readiness. While handicapped children may be slower in accepting new and/or solid foods, it is extremely important that they be encouraged to do this.

Some children may have to be fed and/or may be unable to take solid foods for their entire lives, but it is important for their sense of independence as well as their nutritional status that they be allowed and encouraged to do the most that they can do.

Specific signals that the child may offer the caregiver to show that he or she is ready to try new foods may be as direct as reaching for someone else's plate or putting non-food items in his or her mouth. Other signals that the child may offer include the ability to hold the head up, lateral movement of the tongue and accepting fluid from a cup. While these actions might not be as easy for a handicapped child to perform, they can be controlled and taught by the caregiver. The child's stage of development and awareness of the eating process will determine the type and texture of the food offered (see Tables 4,5). As always, attention must be paid to the special diet the child requires.

The feeder should take care to make the feeding time a pleasant one and as free of other distractions as possible. Positioning is important, as has been explained by the occupational therapist. For the caregiver's sake, it is important that expectations are not too high for the child to reach at any given time. Each situation is unique.

Being aware of the feeding patterns of healthy children who have normal developmental milestones will result in a greater understanding of the feeding patterns of children with special needs. (See Table 2, for Progression of Food Textures, and Table 4, Introduction to Table Foods.)

Disabled children, for both nutritional and developmental reasons, may be at greater risk to become overweight or underweight. Growth charts are helpful in monitoring your child's weight; if your child begins to lose or gain weight or the child's growth curve begins to level out, you will be on top of the situation before it becomes serious. Growth charts are available through your doctor's office. The chart's purpose is to indicate your child's actual height and weight in comparison to his former growth, and in comparison to other children his or her age. For some conditions such as Down syndrome, there are special growth charts available. Unfortunately, a true measurement of height is often almost impossible to measure when a severely disabled child's spine is involved, and comparison to healthy children on a growth chart is not always helpful.

When a child's growth is impaired, it is often difficult to assess whether the weight loss is due to poor food intake or some medical condition. You may be asked by your family physician or nurse to monitor your child's food and beverage intake over a period of time, so that this information can be used to assess the cause of the weight loss.

Overweight

Children with Down syndrome, myelomeningocele, spastic Cerebral Palsy, and Prader Willi syndrome are likely to have weight problems. Being overweight can add to the handicap by decreasing mobility, and the child may be at greater risk of complications when undergoing surgery. Fat deposits can cause skin ulcers and infections. In addition, obesity can be an emotional and social handicap.

Because there is no simple or effective treatment for obesity, prevention is the key element in the management of these children. The child who is cannot walk needs only 75% of the calories needed by a child who can. Low-fat and low-calorie foods are appropriate choices for these children. Because diets restricted in calories are not as easy to balance, special care must be taken to assure that all of the child's nutritional needs are being met. Compare the daily menu with the Basic 4 Food Groups to assess adequacy.

Underweight

Although conditions such as athetoid Cerebral Palsy, minimal brain dysfunction, autism, and congenital anomalies can cause a child to be underweight, it is not always the result of a medical condition. Short feeding periods and loss of food from the child's mouth during feeding can all contribute to the problem. This child is also at nutritional risk, because, as noted above, low-calorie diets are more difficult to balance. Vitamin and mineral deficiences are common in underweight children. Care must be taken to provide nutrient-dense food which is attractive and palatable, so that the child will be inclined to eat it. See Table 6, Calorie Boosters, for suggestions which may also be useful in feeding the "picky eater."

Constipation

Constipation often results from low muscle tone, lack of activity and poor diet. To help prevent constipation:

1. Increase fluids - Child should be drinking 4 - 6 glasses of liquid per day, especially as water or juice. The liquid in soups and sherbets also helps to prevent constipation. Prune juice is a particularly good treatment if constipation does occur.

2. Increase fiber - Include plenty of whole grains, fruits and vegetables in the diet. Fiber in the diet also encourages chewing and strengthens the muscles in the mouth. See **Table 7**, "Here's How to Add Extra Fluids and Fiber."

3. Increase activity - Almost any type of activity will help. If the child can't move, massage the stomach area and gently and rhythmically bend the legs up into the body.

Diarrhea

Diarrhea can be defined as frequent, watery stools. It is caused by irritation of the intestines, emotional disorders and increased mucus secretions. Dehydration is the most serious complication associated with diarrhea. Younger children are at greater risk of dehydration because their bodies require more fluid per pound of body weight than older children or adults. Most cases of diarrhea are mild and can be treated at home, but your family physician should be consulted if diarrhea persists.

When a child has frequent loose bowel movements, clear liquids are usually recommended to replace water and electrolytes. Sometimes the physician may recommend Pedialyte (sterilized glucose water with electrolytes) to start off. For infants with diarrhea, small amounts of diluted formula or breastmilk may be given. No formula or cow's milk should be offered. Infants should be given an average of two ounces of fluid every hour or about a cup over the span of six hours. It is better to give small amounts of liquids frequently than large amounts of liquids occasionally.

The severity and frequency of the diarrhea and age of the child should dictate the diet. Please consult your physician for the most appropriate diet for your child.

The diet for children who have diarrheal stools every four to six hours should include plenty of clear fluids and soft, bland foods such as mashed banana, rice cereal, applesauce and dry toast. Parents should limit the amount of fruit and fruit juice, fatty, rich and spicy foods, all of which can be irritating to the intestines.

Dental Health

Healthy teeth are important for all children, but especially for children who have feeding conditions that affect what and how much that child is able to eat.

Good dental health begins at the child's birth. "Bottle syndrome" occurs when the child is put to bed with a bottle and falls asleep with fluids in his or her mouth. This is especially a problem when liquids have a high content of sugar (such as Kool-Aid and sweetened juice). For further information on foods which should be avoided in an infant's diet and tips on how to promote good oral hygiene, refer to Table 9 in the Appendix.

Food and Drug Interactions

There are certain conditions common to the developmentally delayed population which are likely to require the long term use of drugs, some of which can interact badly with the child's diet and/or cause side effects which negatively affect nutritional status. There are some simple and direct guidelines for avoiding or reducing this problem. (Refer to Table 10 in Appendix.)

Iron Deficiency Anemia

Iron deficiency anemia is common in many young children. It is caused by an inadequate supply of iron in the diet. Lethargy or excessive tiredness is an early warning sign of iron deficiency anemia, which can be diagnosed by a simple blood test. The problem occurs in many children who drink large amounts of milk, usually from a bottle, which leaves them too full to eat foods high in iron such as iron-fortified cereal, red meats, dried beans, fortified grain products and dark green leafy vegetables. Foods rich in vitamin C and sources of protein help the body use the iron.

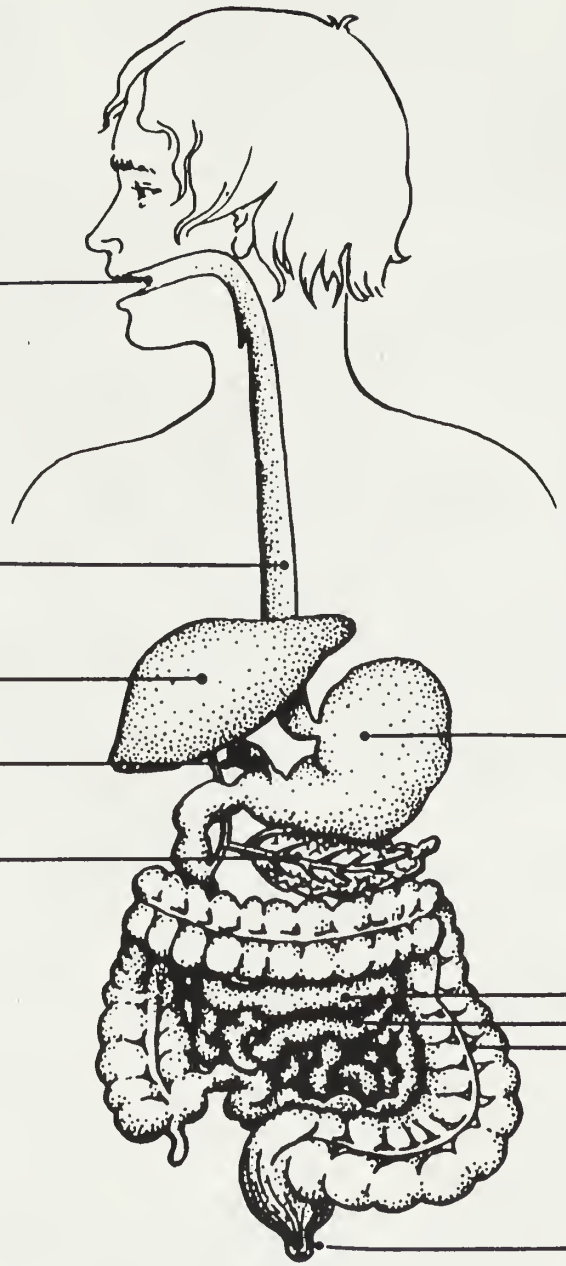
IT IS IMPORTANT TO REMEMBER THAT EACH CHILD IS AN INDIVIDUAL, AND HIS/HER DIET SHOULD BE CUSTOMIZED AS MUCH AS POSSIBLE TO MEET THAT CHILD'S NEEDS.

How the Body Breaks Down Food into Nutrients and Wastes

Mouth — entrance to the digestive tract. Your teeth shred and tear big chunks of food into smaller pieces. Enzymes in saliva begin to dissolve some carbohydrates. Enzymes are substances made by the body. They ignite chemical reactions that transform one substance into another. Without enzymes, digestion would take days instead of hours, and the nutrients and energy in the food would be released too slowly.

Esophagus — a muscular tube that squeezes food to the stomach in 7 seconds.

Liver, Pancreas, and **Gallbladder** — produce enzymes and other chemicals to help break food down.



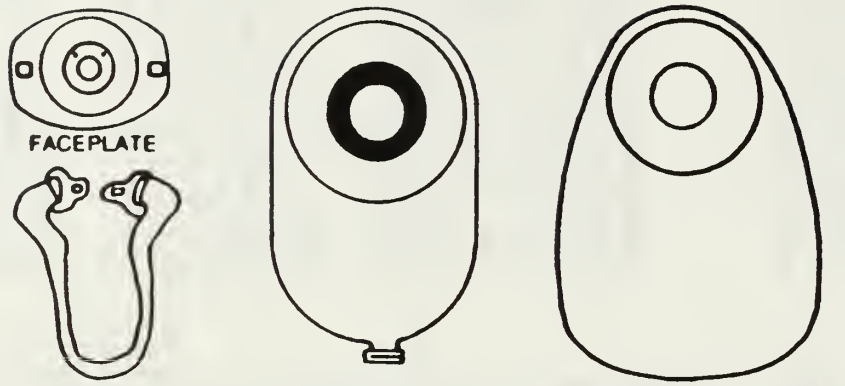
Stomach — contains acid that dissolves food into a liquid. Food is churned and mixed for 3-4 hours. The stomach holds about 1½ quarts.

Small Intestine — continues to break down food. When food is completely broken down into carbohydrates, fat, protein, vitamins, minerals, and water, it travels through the wall of the small intestine and into the bloodstream. Food stays in the small intestine for about 8 hours.

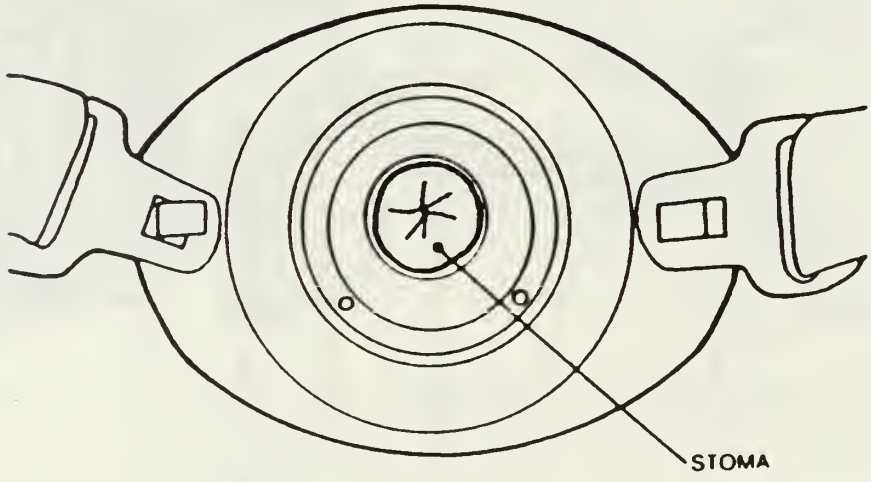
Villi — millions of small, fingerlike projections that cover the inner surface of the small intestine and increase its surface area. Villi enable the small intestine to absorb nutrients faster (see figure 1-1).

Large Intestine — collects the parts of plants the body doesn't digest such as celery strings and seeds. Also collects old blood cells and other waste from the body. Water is drawn in through the walls to make excretion of waste easier.

Anus — waste exits.



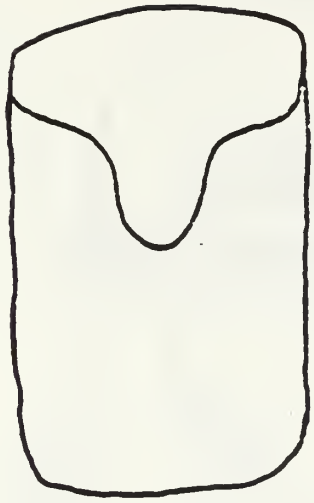
Collection Appliances



Faceplate of a Collection Appliance
(Placed Over the Stoma)

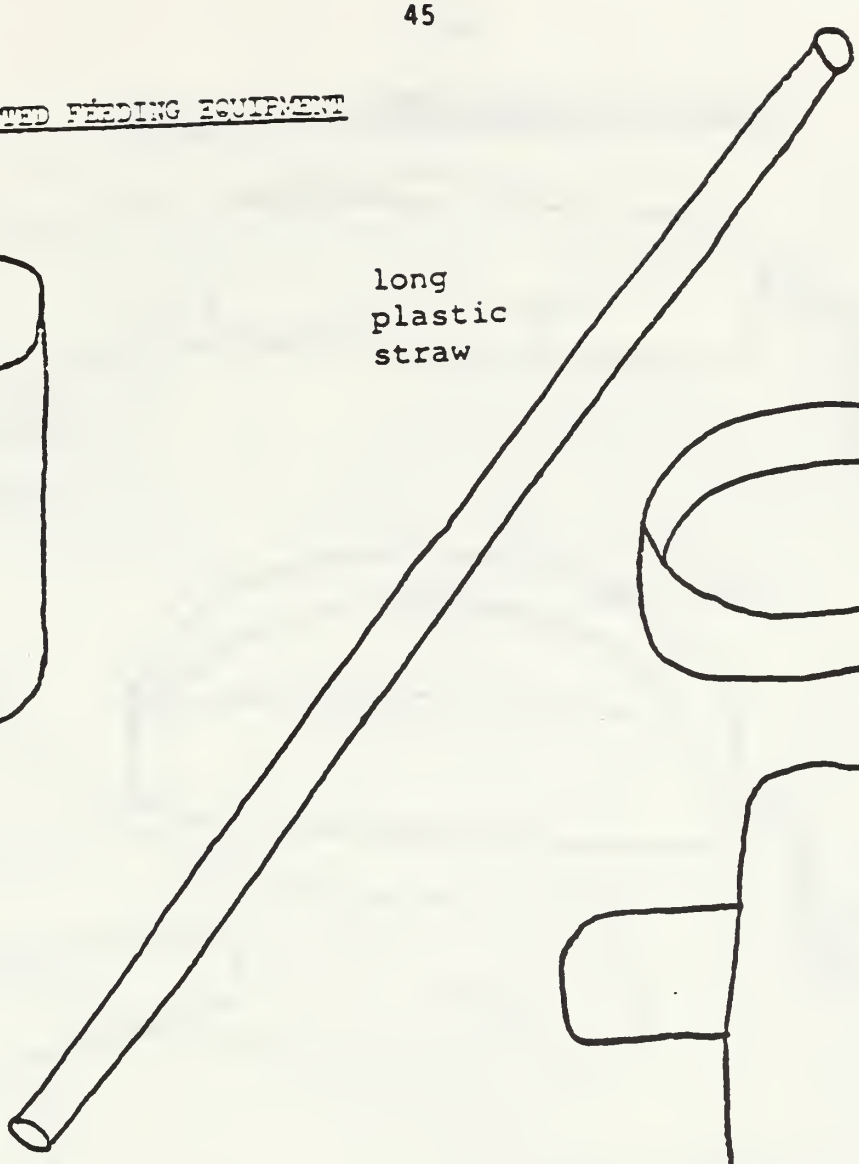
Source: Medical Aspects of Developmental Disabilities in Children Birth to Three. James A. Blackman, M.D., University of Iowa, 1983.

ADAPTED FEEDING EQUIPMENT



nosey cup

long
plastic
straw

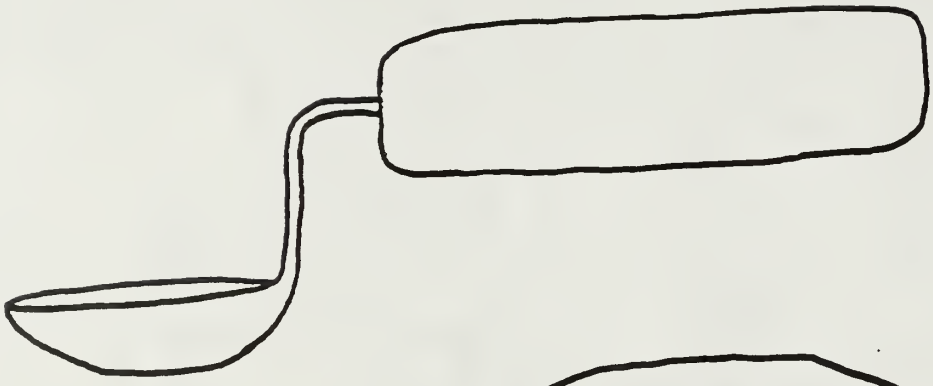


glass
holder

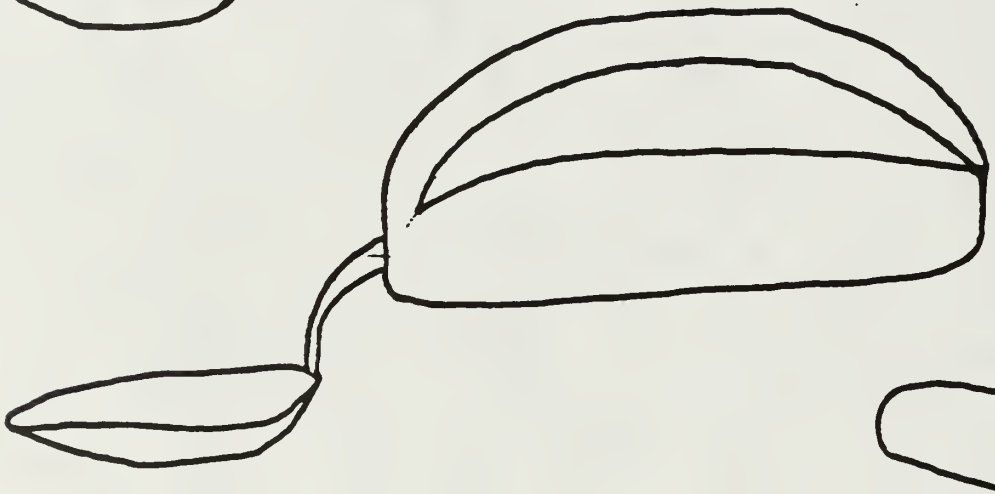
pedestal
cup

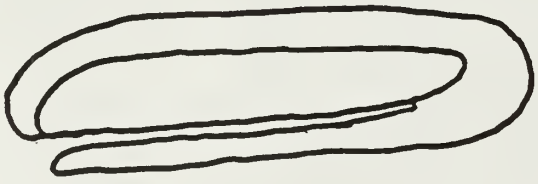
2 handled cup

ADAPTED FEEDING EQUIPMENT



built-up handle spoons





universal cuff

long opponens splint

INDEPENDENT FEEDING EQUIPMENT

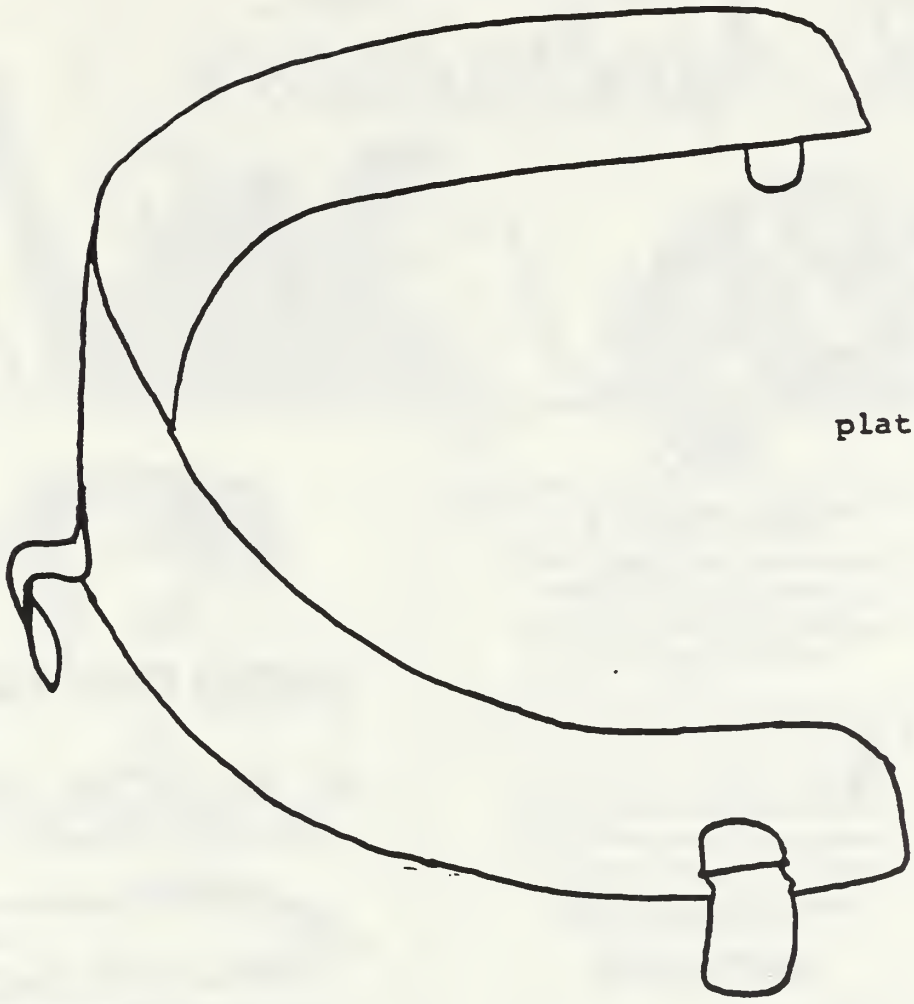
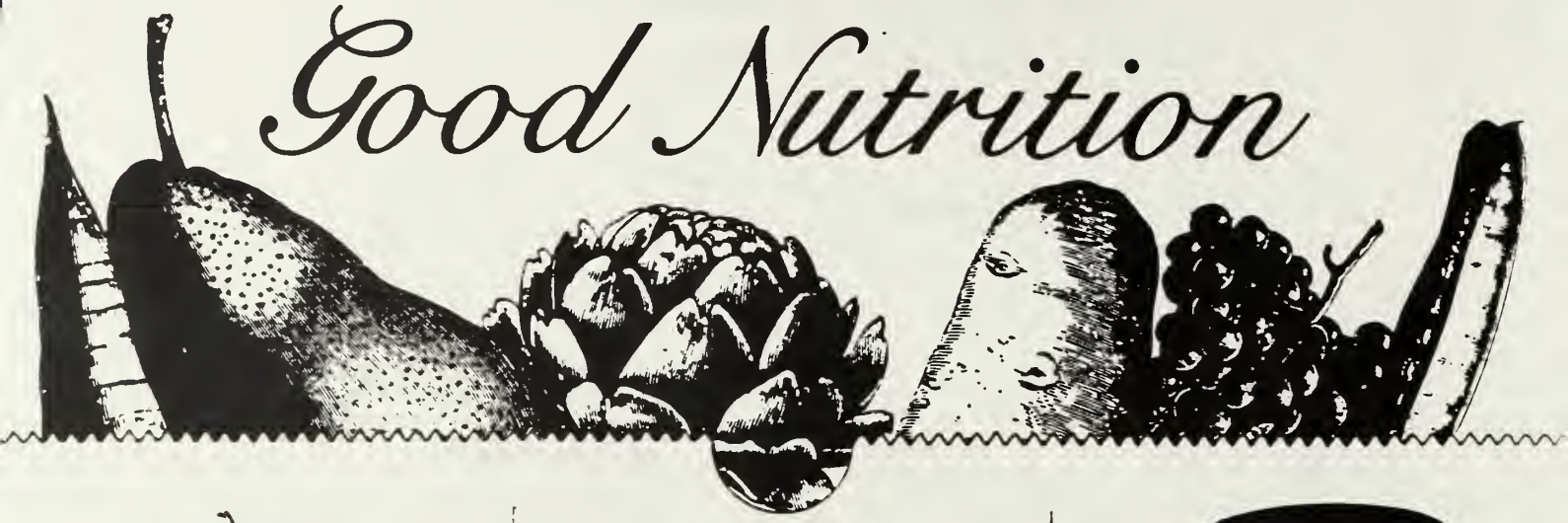


plate guard

scoop
dish

TABLE 1

Good Nutrition



FOOD

is made up of nutrients.

NUTRIENTS

supply the body with energy.
Provide the raw materials
the body needs for growth.

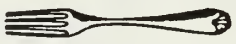
The amount of food your child needs depends on gender, age, general health, activity level and size.

The developmentally delayed child requires the same nutrients as any other child.

Your Child's

physical, mental and emotional health is dependent on good nutrition. A good diet provides the nutrients needed for growth.

A child's *appetite* may vary from meal to meal. General health, oral-motor function, activity and age influence how much is eaten.

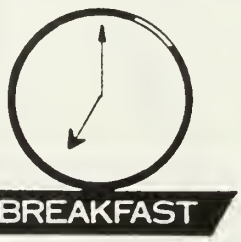


MEALS for your child need not be planned separately from family meals. Simply adjust the texture and portion size according to his/her needs. Here are sample meal plans to suit children and adults.

Adjust them to the food and mealtime preferences of your family

4 FOOD GROUPS

Milk
Protein
Bread & Cereal
Fruits & Vegetables



BREAKFAST

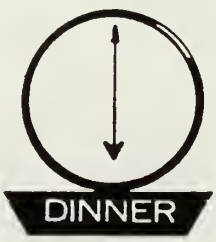
Fruit, Fruit Juice
Cereal, Egg or both
or Bacon, Cheese, Hot Dog
Peanut Butter Toast
Toast Bread, Muffin, Bagel
Milk to drink and with Cereal

LUNCH

Cheese, Egg, Meat or Peanut Butter
Bread
Bits of Vegetables & Fruit
Milk, Tea or Soup made with Milk
Snack-cereal & Raisins

SNACKS

Ice cream, Yogurt with Granola



DINNER

Meat, Chicken, Fish, Cheese
Egg or Main Dish made with
Dried Beans or Peas
Dark Green, Leafy or
Orange Vegetable or Fruit
Bread, Biscuits, Rolls
Rice or Noodles

From JFK Institute, Md.

TABLE 2

Feeding Time

PROGRESSION OF FOOD TEXTURES FOR HANDICAPPED CHILDREN

When your child	He / She is ready for	Suggested Foods
handles food through a sucking action and cannot move food to sides of mouth	thickened puree or soft mashed foods.	Mashed potatoes, well cooked mashed vegetables, soft diced fruits, cooked cereal, applesauce, yogurt.
begins to show up and down chewing and is able to move food to sides of mouth	ground foods progressing to chopped table food.	Ground fruits and vegetables, ground non-stringy meat mixed with gravy. Chopped meats and casseroles, cut-up cooked vegetables and fruits, grilled cheese sandwich, french-fried potatoes.
has mature chewing moves food freely from side to side of mouth	regular table foods.	Small pieces of chopped meats, crispy tendered vegetables & fruits.
begins to bring food to mouth and has adequate oral motor skills	finger foods.	Oven dried toast, peeled hot dog, banana slices, dry cereal, cheese sticks, large curd cottage cheese, soft cut-up fruit, graham crackers, fish sticks.
begins to spoon feed self and has adequate oral motor skills	food that sticks to the spoon.	Yogurt, applesauce, mashed potatoes, cooked cereal, cheese, cottage cheese, puddings, macaroni and cheese.

TABLE 3

RECOMMENDED FOOD INTAKE FOR GOOD NUTRITION ACCORDING TO FOOD GROUPS AND THE AVERAGE SIZE OF SERVINGS AT DIFFERENT AGE LEVELS

FOOD GROUP	SERVINGS PER DAY	AVERAGE SIZE OF SERVINGS 1 YR.	2-3 YR.	4-5 YRS.
Milk and Dairy Products (1.5 oz. cheese= 1C Milk)	4	½ C	½-3/4 C	3/4 C
Meat Group (protein group) Egg Lean meat, fish, poultry or peanut butter	3 or more	1 egg 2 T	1 egg 2 T	1 egg 2 T
Fruits and vegetables Vitamin C source (citrus) Vitamin A source (green or yellow vegetables) Other vegetables (potato, legumes, etc.) or Other fruits (apples, bananas, etc.)	at least 4 including: 1 or more 2	1/3 C 2 T 2 T ¼ C	½ C 3 T 3 T 1/3 C	½ C ¼ C ¼ C ½ C
Cereals (whole-grain or enriched) Bread Ready-to-eat cereals Cooked cereal (including macaroni, spagetti, rice etc.)	at least 4	½ sl. ½ oz. ¼ C	1 sl. 3/4 oz. 1/3 C	1½ sl. 1 oz. ½ C
Fats and Carbohydrates Butter, margarine mayonaise, oils: 1 T= 100 kcalories Desserts and sweets: 100 kcalorie servings as follows: 1/3 C pudding or ice cream 2-3" cookies, 1 oz. cake 1 1/3 oz. pie, 2 T jam, jelly, honey, sugars	to meet caloric needs	1 T 1 serv.	1 T 1 serv.	1 T 1 serv.
Kcalories for the day		±950	±1300	±1600

T= tablespoon

TABLE 3 (cont.)

RECOMMENDED FOOD INTAKE FOR GOOD NUTRITION ACCORDING TO FOOD GROUPS AND THE AVERAGE SIZE OF SERVINGS AT DIFFERENT AGE LEVELS

FOOD GROUP	SERVINGS PER DAY	AVERAGE SIZE OF SERVINGS 6-9YRS.	10-12YRS	13-15YRS.
Milk and Dairy Products (1.5 oz. cheese=1 C Milk	4	3/4=1C	1C	1C
Meat Group (protein foods) Egg Lean Meat, fish, poultry or peanut butter	3 or more	1 egg 2-4 oz.	1-2 eggs 3-4 oz.	1-2 or more 4 or more oz
Fruits and Vegetables	at least 4 including:			
Vitamin C source (citrus) Vitamin A source (green or yellow fruits and vegetables		½C ¼C	½C 1/3C	½C ½C
Other vegetables (potato, legumes, etc.) or Other fruits (apples, banana etc.)	2	1/3C 1 Med	½C 1 Med	3/4C 1 Med
Cereals (whole-grain or enriched) Bread Ready-to-eat cereals Cooked cereal (including macaroni, spaghetti, rice, etc.)	at least 4	1-2 sl. 1 oz. ½ oz.	2 sl. 1 oz. 3/4C	2 sl. 1½ oz. 1C or more
Fats and carbohydrates Butter, margarine mayonaise, oils: 1T= 100 kcalories Desserts and sweets: 100 kcalorie servings as follows: 1/3C pudding or ice cream 1-3"cookies, 1 oz. cake 1 1/3 oz. pie, 2 T jelly, jam, honey, sugars	to meet caloric needs	2T 3 serv.	2-3T 3 serv.	2-4T 3-6 serv.
Kcalories for the day		±2100	±2500	±2700

T = tablespoon

C = cup

TABLE 4

1. Introduction To TABLE FOODS

"I want something to eat besides my bottle!"

When your child is ready for table foods, serve SOFT, MASHED Table Foods.

SUGGESTED	TO AVOID
Mashed potatoes	Raw vegetables
Well cooked mashed vegetables (carrots, stringless green beans)	Large pieces of meat or any type food
Soft diced fruits (bananas, peaches, pears)	
Slices of peeled vienna sausage	
Liverwurst	
Well cooked ground meats	
Yogurt	
Tuna fish	

2. Finger Foods

"Look Mom, I can eat with my hands."

Foods should be soluble in the mouth to prevent choking.

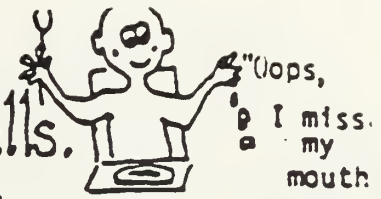
SUGGESTED	TO AVOID
Oven dried toast	All dried fruits-raisins, apricots coconut, dates
Peeled hot dogs	American processed cheeses
Banana slices	Peanut butter
Peeled seedless grapes	
Soft cut up fruit or canned fruit	
Mealy apple slices (remove skin)	
Cheerios	
Graham crackers	
Canned or steamed vegetables (broccoli, green beans)	
Cheese sticks, hard cheeses (Cheddar, Monteray Jack)	
Large curd cottage cheese	
Small pieces of nonfibrous meat (meat should be moist or use a sauce such as tomato or meat sauce) Try ham, meatballs, pork, chicken, organ meats.	
Scrambled eggs	
Fish sticks	

3. Introduction of more TEXTURED foods from Family Meals.

"Mom still feeds me sometimes, but I eat the same foods as everyone else"

SUGGESTED	TO AVOID
Thick stews	Casseroles with crunchy foods like nuts, water chessnuts, celery
Casseroles-mixed meat sauce and pasta -vegetable and cheese	Chunks and pieces of food that splinter, such as potato chips
Vegetable soups	Tacos
Shoestring potatoes	Lettuce
French fried potatoes	
Quiches, souffles	
Grilled cheese sandwiches	
Lasagna-meat or meatless	

TABLE 4 (cont.)



4. Feeding the FLOOR: Beginning of self-feeding skills.

SUGGESTED	TO AVOID
Foods that will adhere to a spoon when scooped.	Foods that slide off a spoon.
Yogurt	custards, jello
Applesauce	canned fruits
Mashed potatoes	soup
Cooked cereal - oatmeal, cream of rice farina, grits	
Cheerios soaked in milk	
Puddings	
Macaroni and cheese	
Cottage cheese	
Egg salad	
Mashed pork and beans	

*To develop self drinking skills use plastic tumbler with a small amount of liquid.

5. CHEWING FOODS: Introducing more fibrous foods.

Small pieces of chopped fibrous meats-steak, roast and crispy tendered vegetables and fruits

INTRODUCTION OF FRUITS AND VEGETABLES IN A GRADUATED PATTERN

It is best to introduce one texture at a time. Delay adding textured foods that are juicy such as peaches and pears until stage 2.

VEGETABLES

-1-		-2-		-3-
Tomatoes	COOKED eggplant	COOKED lentils	RAW	carrots
Zucchini	peas	cabbage		celery
Mushrooms	potato	carrots		broccoli
Bean Sprouts	squash	cauliflower		brussel sprouts
Pickles	broccoli	corn		cabbage, coleslaw
Pared cuke slices	beets	asparagus		cauliflower
		fresh greens small pieces		artichokes
				radishes
				turnips, water chessnuts

FRUITS

-1-	-2-	-3-
Canned fruits water or juice packed	blackberries	dried fruits
Cantaloupe, muskmelon	fresh figs	raw pineapple
Apricots	plums	shredded coconut
Strawberries	watermelon	
Seedless grapes	peaches, pears	
Oranges		
Bananas		

Prepared by Denise Wolf, Nancy Couhig, R.D., M.S., Peggy Pipes, R.D., M.P.H.
Nutrition Section, Clinical Training Unit
Child Development and Mental Retardation Center
University of Washington
November 1978

TABLE 5

FOODS OF INCREASING TEXTURES

	DAIRY GROUP	MEAT GROUP	FRUIT/ VEGETABLE GROUP	GRAIN GROUP
THIN LIQUIDS	*Infant formulas *Milk *Low fat milk *Buttermilk		*Juices Apple Grape grapefruit orange prune	
THICKENED LIQUIDS	*Milk thickened with yogart or ice cream. No fruit or nut pieces. *Milkshakes *Cream soups without vegetable pieces *Eggnog		*Fruit nectars *Thick tomato juice *Thick vegetable juice *Fruit juice thickened with applesauce or strained fruit	*Liquid thickened with infant cereal
SOFT OR PUREED FOODS	*Pudding *Ice cream without fruit or nuts *Custard *Yogart	*Pureed baby meats	*Blenderized fruits and vegetables *Mashed potatoes *Unsweetened applesauce	*Infant cereal

TABLE 5 (cont.)

FOODS OF INCREASING TEXTURES

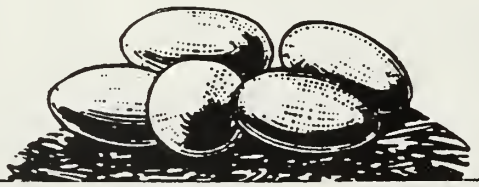
	GROUP	MEAT GROUP	FRUIT/ VEGETABLE GROUP	GRAIN GROUP
LUMPY FOODS	*Tapioca *Yogart with fruit *Cottage cheese *Scrambled eggs *Soft boiled eggs	*Meat passed through grinder *Ham salad *Tuna salad	*Mashed ripe fruit *Lumpy mashed potatoes *Mashed, well-cooked vegetables *Mashed, well-cooked fruits *Baked potato	*Cream of Wheat *Oatmeal *Mashed, well-cooked rice *Well-cooked pasta
EASILY CHEWED FOODS (Finger Foods)	*Soft grilled cheese sandwich *Cheese *Hard boiled eggs *Omelet	*Hamburger *Chicken *Fish *Tuna *Luncheon meats *Turkey	*Melons *Green seedless grapes *Tomatoes *Cooked vegetables *Bananas *Berries	*Noodles *Bread without crust *Pancakes *Waffles *French Toast *Muffins *Crackers *Dry cereal
HARD-TO-CHEW FOODS		*Stew *Steak *Pork chops *Lamb chops *Baked ham	*Raw vegetables *Raw fruits	*Granola *Bread with crust *Bread sticks

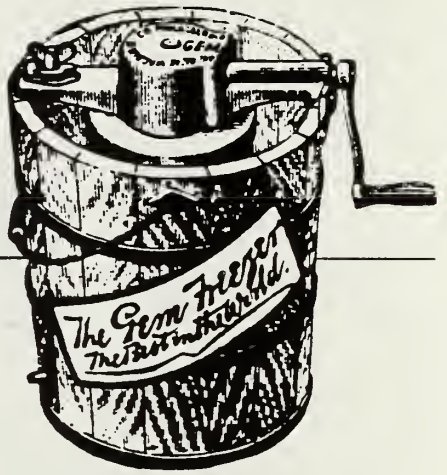
Childrens Hospital Medical Center. Boston,Ma.

TABLE 6

Calorie Boosters

for Weight Gain





IF YOUR CHILD

is having trouble gaining weight, here are some ways to hide extra calories.

Powdered Skim Milk

Add 2-4 tablespoons to 1 cup milk. Mix into puddings, potatoes, soups, ground meats, vegetables or cooked cereal.

Carnation Instant Breakfast (a food supplement)

Add to milk or puree fruit to make milkshakes.

Eggs

Blend into milkshakes or other beverages. Add to casseroles, hamburger or soups.

Corn Oil, Margarine

Add to puddings, casseroles, sandwiches, vegetables, soups, cooked cereal.

Cheeses

Give as snacks or in a sandwich. Add to casseroles and potatoes.

Dried Fruits

Serve as snacks or mixed into cereals or desserts.

Peanut Butter

Serve on toast, fruit or as peanut butter logs (see recipe).

Ice Cream

Use in milkshakes.

Wheat Germ

Add a tablespoon or two to cereal. Mix into cookie batter, casseroles, puddings, etc.

SUPER SHAKE

1 cup ice cream
1 cup milk
1 package Carnation Instant Breakfast

Blend well.

PEANUT BUTTER LOGS

1 cup milk (nonfat dry crystals)
½ lb. peanut butter
½ cup honey
1 cup rice krispies
1 cup 100% bran flakes
½ cup raisins

Combine all ingredients well. Flatten mixture in a large pan. Chill overnight. Cut into 2" x 1" servings.

SUPER PUDDING

2 cups milk
2 tablespoons vegetable oil
1 package (4½ oz.) instant pudding
¾ cup nonfat dry milk powder

Stir milk and oil, add pudding mix and mix well. Pour into dishes of ½ cup servings.

TABLE 7

Here's how to add extra Fluids & FIBER

1. Encourage your child to drink lots of liquids, offer juice, milk or water frequently.

2. Add 1 Tablespoon of bran a day to their foods. Slowly work up to 2 Tablespoons of bran daily. Put bran cereal in cereal, mashed potatoes, pureed foods or combined with hamburger.

3. Add a new fiber containing food daily from the list below. Serve up to 5 fibers foods everyday.

Fiber Foods

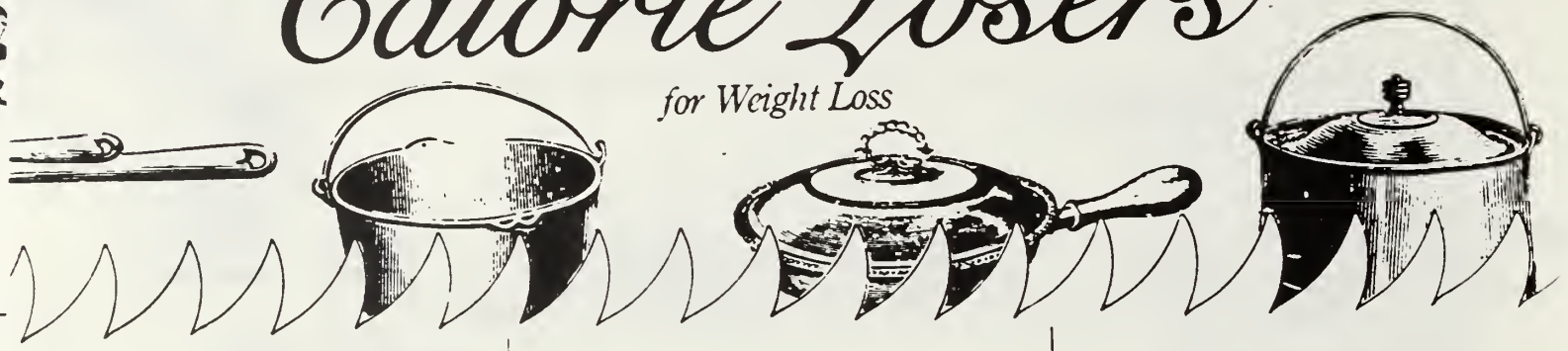
* Eat apples fresh or baked with the peel.
* Serve a green salad.
* Add bean sprouts to salads and sandwiches.
* Tomatoes have good fiber too.
* Try raw vegetable sticks. Cut up carrots, celery, cauliflower, zucchini, broccoli and eat them plain or with a dip.
* Squash is a good source of fiber baked or steamed.
* Add seeds and nuts for extra fiber - peanuts, sunflower seeds, sesame seeds, pumpkin seeds.
* Add dates raisins, and other dried fruits to foods.
* Use whole grain breads.
* Try oatmeal or wheatena for breakfast.
* Offer a small glass of prune juice at breakfast or before bed.
* Popcorn adds fiber too.
* Cut whole organes and grapefruit into sections; eat them with part of the inner, white pith.
* Suprise! Cocoa has fiber too.

from: JFK Institute, MD.

TABLE 8

Calorie Losers

for Weight Loss



FAT IS FATTENING

1 *Use less fatty foods at every meal.*

That means less:
Margarine
Butter
Gravies
Marbled or Fatty Meats
Fried Foods
Whipped Cream
Salad Dressings
Cream Sauces
Oils

2 *Select the cooking method to best cut calories.*

Cook with little or no fat.

DON'T
deep fry foods.

DO
broil, bake or roast meats, poultry & fish.

remove all visible skin & cut away excess fat.

steam, boil or bake vegetables.

3 *Serve smaller portions.*

Only give second helpings of lower calorie foods (vegetables, fruit).

Serve half portions.

Make sandwiches open faced using one slice of bread.

GETTING RID OF EXCESS WEIGHT

doesn't happen overnight,
but with a little determination and
knowledge it can be done.

4 *Don't let your child skip meals.*

This leads to high calorie snacking. Every little nibble adds extra calories to your child's diet.

5 *Drink low fat or skim milk.*

Low fat milk is just as nourishing as regular milk, but has less calories & fat.

Also try part-skim milk cheeses & 1% or 2% cottage cheese.

PLAN AHEAD

Keep the right foods on hand & the fattening ones won't be as tempting to your child.

Start today to teach your child to eat the sensible way!

6 *Steer clear of sugary foods.*

SERVE	AVOID
Vegetable Juices, Unsweetened Fruit Juices, Broth, Diet Soda, Water.	Sodas, Fruit Punches & Drinks, Milkshakes.
All Fresh, Stewed, Steamed, Baked or Boiled Fruits & Vegetables (without butter or sugar).	Canned Fruit in heavy syrup, Creamed, Au Gratin & Fried Vegetables
Plain Bread, Rolls, Crackers or Melba Toast.	Pies, Cakes, Pastries, Cookies & Donuts.
Dzerta	Candy, Honey, Jam, Potato Chips, Pretzels.

7 *There's no need to buy special foods.*

Plan your meals ahead of time from foods purchased for the rest of the family.

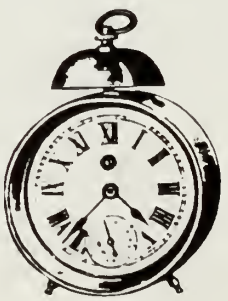


TABLE 9

Brouillette, M. R.D. A Happier, Healthier Mealtime. A Guide Booklet For Parents of Developmentally Disabled and Delayed Children. The New Bedford Kennedy-Donovan Ct


DENTAL HEALTH


Healthy teeth are important for proper chewing, clear speech, and a pleasing appearance. Good dental care begins at birth when a parent should consciously decide not to put the infant to bed with a bottle in her mouth. Nursing bottle syndrome is caused by exposure of teeth to sugar for long periods of time. Bacteria normally present in the mouth interact with the sugar found in all liquids (except water) to produce a strong acid which decays the teeth. When a child sucks on a bottle all day long, or falls asleep with a bottle, her teeth are constantly bathed in a sugary solution and cavities begin. Cavities not only damage the teeth, but can be very painful and interfere with a child's normal eating, drinking and speech.

To prevent this condition from happening a parent should:

1 - Put only formula, milk, fruit juice or plain water in the bottle (no soda, punch, sweetened drinks)
2 - Give the bottle only at feeding time and hold and feed the child rather than propping the bottle with her in the crib
3 - Remove the bottle from the child's mouth if she falls asleep in your arms
4 - Do not dip the pacifier in sugar, honey, etc.
5 - Encourage the child to drink from a cup
6 - Practice good dental hygiene
7 - If a child must take a bottle to bed, allow plain water only

A child's baby or first teeth have an important role to play, even if some of them begin to fall out by the time the child is six or seven. The first teeth are used for support and shape of the face, in formation of sounds and words, for chewing, as spacing and proper alignment for the second or permanent teeth, and as shiny white components of a child's happy and endearing smile.

Once a baby's first tooth erupts, it should be gently wiped daily with a soft cloth, cotton swab or gauze to help remove any food residue. When the child has several teeth and is about one year old, a small, soft toothbrush can be introduced and encouraged. Children love to imitate and will eagerly brush their teeth along side of a parent or sibling. If a child cannot handle a toothbrush and is resistant to allowing someone else to brush her teeth, she can chew on a cellulose sponge coated with a little toothpaste. If poor hand to mouth coordination is a problem, an electric toothbrush might be helpful. In either case, proper

TABLE 9 (cont.)

supervision is needed. Fluoride toothpaste can be introduced in small amounts, when the child is about 18 months old. Toothpaste should not be swallowed because it contains a lot of sodium.

By avoiding sticky, sweet foods, we can cut down on the amounts of residue left on the teeth. Raw fruits and vegetables have been referred to as nature's own toothbrush, as chewing of these foods helps to remove food particles left on and in between the teeth.

A visit to the dentist should be arranged when the child reaches her third birthday. By promoting good dental care, we can provide years of healthy, disease free teeth.

FLUORIDE

Fluoride has been proven effective in preventing tooth decay, and many communities have added it to their drinking water. Fluoride is a mineral that helps to strengthen bones and teeth, and is found in small amounts in some foods. Adding fluoride to the water supply is a controversial issue, and at present fluoride is not added to the New Bedford water. Parents should consult with their doctor or dentist and follow their recommendations for fluoride supplementation. Fluoride found in toothpaste or in mouth rinses is topical and wears away quickly. It should not act as a substitute for fluoride supplements prescribed by the doctor.

SUGAR

Most people think of candy, chocolate, soda, pies, cakes and other desserts when the word sugar is mentioned. Today, sugar is added to many food products and it is estimated that the average American consumes well over 100 pounds of sugar per year.

Did you know that...

...some soft drinks (soda) contain 10 or 12 teaspoons of added sugar per 12 ounce can?

...one chocolate candy bar contains 8-12 teaspoons of added sugar?

...fruit punch or fruit drinks (not 100% juice) contain 6-8 teaspoons of added sugar per glass?

...some of the most popular children's breakfast cereals are anywhere between 40-50 even 60% sugar? Are we really

TABLE 9 (cont.)

giving our kids candy for breakfast?

...a frosted doughnut contains about 8 teaspoons sugar?

...one stick regular gum contains 1/2 teaspoon sugar?

Read your catsup bottle, your jar of spaghetti sauce, your can of soup, your bag of frozen potato puffs, and even your box of salt. Look through the list of ingredients in a packaged salad dressing, or a frozen dinner. Sugar is everywhere, although it may be called dextrose, sucrose, fructose, corn syrup, corn syrup solids, malto-dextrin, etc.

Sugar does supply calories but it does not supply any of the other nutrients the body needs and often contributes to dental cavities, excessive weight gain and can also cause increased drooling. Sugar can satisfy that sweet tooth craving and can add needed calories for someone trying to gain weight, but sugared foods should not be used for rewards or incentives to eat or perform specific tasks. Intake should be limited.

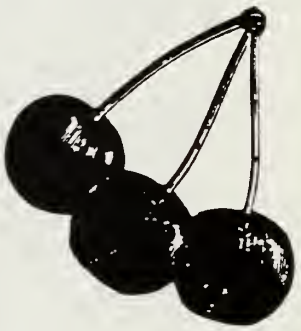
TABLE 10

Drugs & Diet

Conditions common to the developmentally delayed child are likely to necessitate long-term or prolonged treatment with drugs.

—THE— effects of drug therapy

on your child's nutritional status are important.



WHEN USING	CONSIDER	BECAUSE it may cause
Anticonvulsants		
Dilantin Phenobarbital Depakene	Taking right after meals. Vitamin D supplement. Good oral hygiene.	Decreased absorption of vitamin B^{12}, D, calcium & folate. Nausea, vomiting, loss of taste, gum irritation with long-term use.
Antibacterial Agents (for prevention/treatment of urinary tract infections)		
Furadantin Bactrim/Macrodantin	Giving with meals.	Nausea, vomiting, abdominal pain, diarrhea.
Central Nervous System Stimulants		
Dexedrine	Giving with meals.	Anorexia (loss of appetite), abdominal pain.
Laxatives		
Colace Mineral Oil	Administering with milk or juice. Taking before bedtime.	Bitter taste, nausea, vomiting. Decreased absorption of fat soluble vitamins, possible flatulence, indigestion.
Tranquilizers/Muscle Relaxants		
Valium Theophylline Thorazine	Increasing fluid intake. A high fiber diet.	Drowsiness, nausea, changes in salivation, possible constipation.
Antibiotics		
Tetracycline	Taking 1 hr. before or 2 hrs. after meals. (Do not take with dairy products).	Nausea, loss of appetite, decreased iron absorption, diarrhea.
Erythromycin	If coated, giving with meals.	

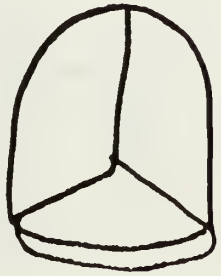
TABLE 11

I. Feeding Equipment

ITEM	USE	SOURCES
Tupperware 3" 2 oz. cups Tiny Flex-Glass 	Useful for children beginning to cup drink. Cups are flexible enough to cut out a one inch in depth circular opening.	Fred Sammons Box 32 Brookfiled, Ill. 60513-0032 1-800-323-5547
Various cups on drink holder two-handed No tip 	Various cups for the older child or adolescent	Fred Sammons Therapro, Inc. 12 Waverly St. Framingham, Ma. 01701 (617) 872-9494
Bottle straws 	Helpful for the child fed in sitting or prone. Allows sucking with out tilting the head back.	Fred Sammons Drug Stores
Corecto Feeding Bottle Banana Bottle	Enables caretaker to give infant bottle without tilting the head back. Allows better control of swallowing.	Kaye Products, Inc 1010 E. Pelligrew St. Durham, N.C. 27701-4299 (919) 683-1051
Mothercare Spoons	Used with children with feeding problems such as lip closure, small oral cavities, sensory sensitivity or tongue thrust.	Equipment Shop P.O. Box 33 Bedford, Ma. 01730 617-275-7681
Various Spoons Built up handles	For the adolescents who has difficulty with grasp.	Able Child 325 W. 11th Street New York, N.Y. 10014 212-255-0068
Curved Spoon	For the child with difficulty bringing spoon to mouth due to poor eye-hand coordination or turning of the head.	Therapro,Inc. 12 Waverly St. Framingham, Ma. 01701 617-872-9494 Fred Sammons Local department stores

TABLE 11 (cont.)

ITEM	USE	SOURCES
Infant plastic coated spoon	For child who is orally sensory defensive. Use with caution with child who exhibits a strong bite reflex. Sometimes helpful for children who have problems removing food from spoon because bowl is too deep.	Able Child Fred Sammons Kaye Products Local department stores Therapro, Inc.
Dishes/Plates Various Bowls Scoop Dish-Inner lip plate	To enable child to scoop more food more easily without spilling.	Therapro, Inc. Fred Sammons Able Child
Drinking straws	Plastic Drinking straws are often easier to use than paper or light plastic. Available in different widths for improving lip closure	Fred Sammons
Cylindrical Foam Padding	Foam padding can be used to build up spoon handles for older children/ adolescents for an easier grasp.	Fred Sammons
Non-slip Dycem	A non-slip plastic that is helpful for stabilizing plates onto surfaces.	Fred Sammons
Toothbrush trainer set by Nuk	Three piece set for cleaning teeth, gums. Safe for children who bite down hard as tips are made of rubber. May be used for sensory stimulation.	Local Department Stores Spags Drugstores Kaye Products
Orthopedic Nipple by Nuk	May provide increased lip closure and stimulation. Flow of liquid allows child greater time to coordinate swallowing.	Local drug and department stores
Corner Seat/Table	Helpful for children who need support in sitting.	Equipment Shop
Bean Bag Chairs	Used for child who needs head/trunk control	Many department stores



. PUBLICATION FOR PROFESSIONALS

A. Through: University of Tennessee
Cen. for the Health Services
Child Development Center
Memphis, Tennessee 38105

Address: Publications
Child Development Center
711 Jefferson Avenue
Memphis, TN 38105

Make check or money order payable to University of Tennessee. We accept Purchase Orders, but please include order numbers on the form. Thank you.

Publications available at the Child Development Center are listed below. Price changes are effective April 1, 1986. Prices are subject to change without notice to the public.

1. Guides for Nutritional Assessment of the Mentally Retarded and Developmentally Delayed Children, Edited by Mary Ann Harvey Smith, Ph.D., R.D. 1976 Cost: $12.50

2. Fun Foods for Fat Folks, by Kitty R. Coffey, M.S., R.D., and Margaret Anne Terrell, R.D. cost $12.50

3. Programs for Feeding Training of Developmentally Delayed Children, by Rita A. Neely, M.S., and Mary Ann Harvey Smith, Ph.D., 1977 Cost: $5.50

4. Proceedings of Region IV Workshop Field Training Needs of Public Health and Community Nutrition Students, Part I and Guide for Field Experiences in Community and Public Health Nutrition, Part II, Edited by Mary Ann Harvey Smith, Ph.D., R.D., Joyce B. Bittle, Ph.D., R.D., Leah Jane Nuckolls, M.D., R.D., 1980. Cost $16.50

5. Nutrition Education for Retarded Children - A Program for Teachers, by Virginia Stewart Johnson, M.D., R.D., Mary Ann Harvey Smith, Ph.D., R.D., Leah Jane Nuckolis, M.D., R.D., 1980 Cost: $14.50

6. Region IV, Quality Assurance in Ambulatory Nutrition Care, Edited by Nancy B. Lee, M.S., R.D., May, 1981 Cost: $3.50

7. Feeding Management of a Child with a Handicap - A Guide for Professionals, Edited by Mary Ann Harvey Smith, Ph.D., R.D., Barbara Connolly, Ed.D., P.T.; Susan McFadden, M.Ed., O.T.R.; Carolyn R. Nierosi, M.A., Leah Jane Nuckolls, M.A., R.D., Fay F. Russell, M.N., R.N., William M. Wilson, M.A., 1982 Cost: $9.50

8. A Comprehensive Handbook for Management of Children with Developmental Disabilities, Edited by Carol Sue White, Ph.D., Jane Wilson Minn, M.Ed.; and Barbara Connolly, M.Ed., R.P.T., 1977 Cost: $9.50

9. Team Approach to Poverty, by Ludmilla S. Gafford, M.S.P.A., A.C.S.W., Fay F. Russell, R.N., M.N., Clarence W. Spence, M.A., Gerald J. Billmeier Jr., M.D., Kitty R. Coffey, Ph.D., R.D., Robert G. Jordan, M.D., 1979 Cost: $5.50

10. Group Approach to Parental Sex Education, by Hisashi Hirayama, Carl S. Wilks, Ludmilla S. Gafford and Susan E. McNamee, 1980 Cost: $5.50

PUBLICATIONS FOR PROFESSIONALS (Cont'd)

11. The Identification and Management of Selected Developmental Disabilities A Guide for Nurses, Edited by Fay F. Russell, R.N., M.N., 1973 Cost: $8.50

12. Questions Parents Ask About Growth, Development, and Feeding of the Young Child, Part I Growth and Development, Part II Feeding Skills and Food Patterns, and Part III Foods for Children, Edited by Eddie Lancaster and M. Diane Brooks, M.S., R.D. Cost $1.50 for each or $4.00 for set of 3

13. Early Intervention Program Trainee Curriculum Guide and Evaluation Tool, by Hazel Cole Capps, M.S., M.A., Barbara Connolly, R.P.T., Ed.D., Ludmilla S. Gafford, M.S.S.W., Fay F. Russell, M.N., and James McCann, Ph.D., 1983 Cost: $2.00 for 25 or more copies, $3.50 for less than 25 copies

14. Child Care Curriculum Guide, University of Tennessee Child Development Center by Hazel Cole Capps, M.S., M.A., 1983 Cost: $11.50

15. Comprehensive Developmental Pediatric Asses nent of Infants and Children - A Guide for Medical Students and Pediatric Residents, by Amethyst C. Cureg, M.D., F.A.A.P., 1984 Cost: $10.00

B. Other Sources

16. Folacin Values in Food, by Eddie Mitchell Lancaster, M.S., R.D., Corneila Hayley Boone, M.D., R.D., Mary Dianne Brooks, M.S., R.D., and Mary Ann Smith, Ph.D., R.D., 1985 Cost: $11.50

17. Interdisciplinary Early Intervention for Developmentally Delayed Infants and Young Children, by Fay F. Russell, Cherry Beasley, Barbara Connolly, Ludmilla Suntzeff Gafford, Judy Douglas George, Beth Michael, Denise J. Perkins, and Judith Powell, October 1985 Cost: $13.50

18. A Training Manual for Special Needs Population. Janet Foos, MPH, R.D. Redwood Coast Regional Center, 808 East Street, Eureka, CA 95501 (707) 445-0893

19. Nutrition and Feeding of Infants and Toddlers. ed by Rosanne Howard, R.D., MPH and Harland Winter, M.D., Little and Brown Co., Boston, MA 1984.

20. Mealtimes For Severely and Profoundly Handicapped Persons. Ed by Robert Perske, Andrew Clifton, Barbara McLean, and Jean Stein. University Park Press, Baltimore, 1977.

Pediatric Nutrition in Developmental Disorders. Ed by Sushma Palmer, D.Sc., R.N. and Shirley Ekvall, M.S.R.D. Charles C. Thomas Publishers. Springfield, Illinois, 1978.

The Needs of Children With Disabilities: A Comprehensive View*

21. The Needs of Children With Spina Bifida: A Comprehensive View* Mark Wolraich, M.D.

The Early Needs of Children With Cerebral Palsy: A Comprehensive View* James Blackman, M.D. and Alfred Healy, M.D.

*Division of Developmental Disabilities. Dept. of Pediatrics. Univ. Hospital School. The University of Iowa Hospitals and Clinics, The Univ. of Iowa. Iowa City, Iowa 52242

Other Sources (Cont'd)

22. Nutrition Care Guidelines: Cancer, Cystic Fibrosis, Diabetes Mellitus, and Renal Disease in Children. Region II Public Health Services and Mt. Sinai Med. Ct. (please send mailing label to: Mariel Caldwell, R.D. Region II. Federal Building, 26 Federal Plaza New York, NY 10278

23. Nutrition Care for High Risk Newborns. Ohio Neonatal Nutritionists.

G. PUBLICATION FOR PARENTS/CAREGIVERS

A. From University of Tennessee (for address see A) Publications)

Nutrition pamphlets written for parents:
Postage + .50
cost .40c for one copy
cost .35c for 50 to 100 copies
cost .30c per copy for 100 or more

"Tips for Tots" 1977, by Gail Vancil. Nutrition and food habits of toddlers for mothers.

"Are You a Choosy Mother?" Dental health and nutrition ideas.

"Iron and Zinc, Trace Minerals Important for a Child's Growth and Development", 1983, by Anna Maria Siega-Riz, M.D. (General nutrition for children including good sources of iron and zinc.)

"The Many Moods of Milk", 1984. (Suggestions for adding milk to the diets of children.)

"Down Syndrome: Nutrition Concerns", 1983, by Amy Brewer. (A discussion of growth, feeding and nutrition of the Down syndrome child, from birth to 2 years of age.)

"Sick Day Guide for the Child with PKU", 1985, by Debra Bresko. (A discussion of illness in the child with PKU with suggestions for food intake.)

B. Other Sources:

1. A Happier, Healthier Meal Time by M. Brouillette, R.D., Kennedy- Donovan Center, New Bedford, MA. Available through the Mass. Department of Education
Bureau of Nutrition, 1385 Hancock Street, Quincy, MA 02169

2. Nutrition for Special Needs Children and Infants by M. Bartlett, R.D. and L. Piette, R.D., Early Intervention Program, Andover, MA. Available through the Mass. Department of Education, Bureau of Nutrition, 1385 Hancock Street, Quincy, MA 02169

3. Mealtimes for People with Handicaps: A Guide for Parents, Paraprofessionals, and Allied Health Professionals by N.T. Pensis and M.A. Mahoney 1983, Charles C. Thomas, Springfield, IL

4. Nutrition for Your Child's Most Important 3 Years: Birth to Age Three, S. Castle 1984, Simon and Schuster, Inc., NY

5. Recipes for Smooth Food, G. Rosenthal, Galen's, 35 South St., Needham, MA 02192

6. Visual Language Cookbook, Joyce and Gallimore, Published by Joyce Media, Inc.,8753 Shirley Avenue, P.O. Box 458, Northridge, CA 91328
Handcover collection of recipes with photos and signs for recipe steps

7. Mother Child Cookbook, Mancy J. Ferreira, Published by Pacific Coast Publishers, Menlo Park, CA 94025

8. The Taming of the Candy Monster Vicki Lansky, Published by Meadow Brooks Press, 18318 Minnetonka Blvd., Deephaven, Mich, 55391
How to set up a cooking program with a motor coordination emphasis

9. Nutrition Casebook on Developmental Disabilities by
Ninfa Saturnino Springer, 1982, Syracuse University Press, Syracuse, NY
Intended for non-nutrition professionals. Emphasis on case studies.

10. Non-chew Recipes, J. Randy Wilson c/o Wilson Pub. Co. P.O. Box 2190 Glenwood Springs, CO 81602-2190 Cost: $14.95 plus $2.50 postage and handling.

11. Let's Table It, Vermont Ct. for Independent Living, 174 River Street Montpelier, VT 05602. Cost $7.00 Cookbook printed in 14-point type (helpful to persons visually impaired). Recipes--delicious, economical and easy to prepare.

12. Nutrition Resource Information For Special Needs/Handicapped Children Their Families and Caregivers. Cynthia Taft Bayerl, R.D., M.S., Mallai Holland, R.D., M.S., Services for Children with Special Health Care Needs. Massachusetts Department of Public Health - 4th fl. 150 Tremont Street, Boston, MA 02111

13. Helpful Nutritional Hints For Children with Myleomenengocele. Marietta L. Lenado, R.D., M.Ed.

Training: The Interdisciplinary Way: Nutritional Needs of the Handicapped/Chronically Ill Child (Manuals and Videotape Catalog)
+University affiliated
Cincinnati Ct. for D.D. - Nutrition Department Pavilion Building. Ellard and Bethesda Avenue, Cincinnati, Ohio 45229

14. A Teachers Guide to PKU: Maria Nardella, R.D., M.A.. Crippled Children's Services, Arizona Department of Health Services, 1740 West Adams, Room 208 Phoenix, AX 85007

15. Helping Your Child to Chew* Denise Sofka, R.D.

16. Helping Your Child Learn to Swallow and Eat Properly, Denise Sofka, R.D., *D.D. Program, Room 892, California State Department of Health, 744 P Street, Sacramento, CA 95814

From Bayerl, C. and Holland, M. Nutritional Resource Information for Special Needs Children. 1988

ORDER FORM

Another nutrition resource you may want to order is:

Nutrition Resource Guide for
Special Needs/Handicapped Children

This booklet lists local providers, feeding programs and professional associations and publications involved in these issues. The Resource Guide should be available in Fall 1988. For further information please send inquiries or the completed form to :

Cynthia Taft Bayerl, R.D.,M.S.
Administrator- Nutrition Programs
Division for Children with Special Health Care Needs
Department of Public Health
150 Tremont Street 4th floor
Boston, MA 02111

phone: 617- 727-5812

I would like to order the Nutrition Resource Guide for Special Needs/Handicapped Children. Please send to:

NAME:_____

ADDRESS:_____

CITY_____STATE_____ZIP_____

AGENCY/AFFILIATION:_____